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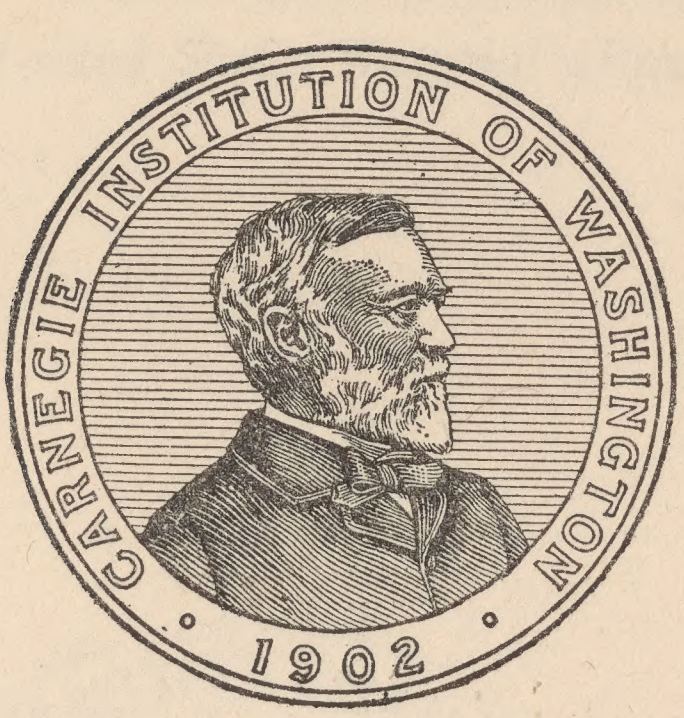

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THE MOSQUITOES OF THE AMERICAS

BY

HARRISON G. DYAR, A.M., PH.D.

Custodian of Lepidoptera
United States National Museum

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MAY 1928

DIV. INS.
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Chron. Arrangement.

Genera.

Culex, Linn., 1758
Aedes, Meigen, 1818
Anopheles, Mg. 1818
Sabethes, R.D., 1827
Psorophora, R.D., 1827
Megarhinus, R.D. 1827
Uranotaenia, L.A. 1891
Haemagogus, Will. 1896
Limatus Dh. 1901
Wyeomyia Dh. 1901
Trichoprosopon Dh. 1901
Mansonia Blanch., 1901
Deinocerites Dh. 1901
Aedeomyia Dh., 1901
Sabethoides Dh. 1903
Theobaldia Neveu Lem., 1902
Goeldia Dh. 1903
Lutzia Dh. 1903
Orthopodomyia Dh. 1904
Chagasia, Cruz, 1906

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J.C. Species to 1900. S.A.

Fabricius, 1794, Ps. ciliata : Carolina.
Meg. haemorrhoidalis : S.A.
1805. Ps. cilipes : S.A.
cingulata S.A.
Sab. cyaneus S.A.
Goeld. longipes; S.A.
Humboldt, 1820 Sabethoides chloropterus Col.
Ps. ferox Col. or Equad.
lineata, Colombia
Wiedemann, 1821 Ae. taeniorhynchus — medico.
1821 An. albimanus: Sto. Domingo
Robineau Desvoidy 1827 An. argyritarsis Brazil
Wiedemann 1828 Ae. fulvus : Brasil
Meg. trichopygus
ferox = Amb. pygmeus P&K.
violaceus : Bahia
Macquart, 1838. Ae. flaripes Chile
Ae. albibifasciatus Chile.
Meg. tarsorhynchus Brasil ?
Rondani, 1848, Trichoprosopon digitata! No local.
Ae. scapularis "
Walker, 1848, Man. titillans: Brasil
Blanchard, 1852, Ae. annuliferus Chile
Ps. chilensis "
Ae. annuliventris, Valdivia, Ch.
Walker, 1856. Ps. discrucians Trinidad
Ae. terrens S. Am.
Bellardi, 1859. Ps. mexicana, Mexico
Lut. bigoti Mexico
Philippi, 1865 Cu. apicinus Chile
articularis "
an. pictipennis "
Ps. marmorata "
L. Arribalzagia, 1878. Cu. albitarsis Arg
annulipalpus Arg
Aedeomyia squamipennis Arg
von Roder, 1885. Meg. portoriccensis Porto Rico
L. Arribalzagia, 1891 Ps. confinnis Arg
holmbergi "
Man. fasciolata "
Cu. dolosus "
Ur. pulcherrima "
Williston, 1896 Wye pertinans : St. Vincent, W.I.
Goeld. perturbans St. " "
Haem. splendens " "
L. Arribalzagia, 1899. U. natalia, Arg

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Caywood & Cottman 1
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Davis 2
Dixon 1
Dugan 1
Dugan & Knudson 10
Dugan & Lindsley 1
Dugan & M. Tozer 9
Dugan & Thomas 4
Edwards 6
Evans 4
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Gallagher & Lewis 1
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Lindsley 32
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Markham 1
Mera 1
Nevin 2
Nevin & Mills 1
Nevin, Lawrence 1
Oakley, Lockhart 1
Peters & Thomas 1
Pomajevski 4
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Pringle & Gibson 1
Pulaski 4
Pinto 1
Prado 1
Rangel 2
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Sheridan & Davis 1
Thomas 3
Thomas & Bell 9
Tennant 1
Turnbull 58
Watson 4
Wickelmann 5
Van Rooten 1
Thompson & Gough 1
Williston 3.

1790-1899: 44 spp.
1900-1909: 228 spp.
1910-1919: 37 spp.
1920-1929: 135 spp.
1930-1938: 58 spp.

THE MOSQUITOES OF THE AMERICAS

By

Harrison G. Dyar

With One Hundred and Twenty-three Plates

THE MOSQUITOES OF THE AMERICAS

By Harrison G. Dyar

Published by Carnegie Institution of Washington

June 9, 1928

ERRATA ET ADDENDA

Page 6, line 13. The "lateral metasternal sclerite" on Plate I is the triangular sclerite between the bases of the mid and hind coxæ crossed by the dots leading to "3." In the figure the base of hind coxa is not in line with the upper margin of the lateral metasternal sclerite, but much below it.

Page 37, before "Wyeomyia gaudians" insert:

WYEOMYIA (WYEOMYIA) CHARMION Dyar

Wyeomyia (Wyeomyia) charmion Dyar, new species (here published).

Female—Unknown.

Male—Proboscis about as long as the abdomen, swollen at tip; proboscic lobes dark bronzy brown, of the color of the mesonotum; abdominal colors separated on the sides in a straight line; legs bronzy, mid tarsi brassy white on one side; hind tarsi marked with white at base of the third joint below and all but the tips of the fourth and fifth; outstanding scales of the wing linear. Hypopygium: Clasper with long slender stem; mid lobe moderate with central point and shoulder on each side, a row of fine long hairs running on a ridge to tip; outer arm with large basal shoulder, slender, with two setæ; inner arm thick, rather large, hooked: core arm large, about as large as mid lobe, though shorter, hairy on its basal angle only.

Larva—Abdominal hair-tufts stellate, in about eight; lateral comb of the eighth segment of about 24 large scales in a straight row; air-tube subfusiform, tapered at tip, about seven times as long as wide at base with scattered single hairs, the basal ventral one double; dorsal hairs of anal segment a long one on each side; lateral hairs double, long; subventral tuft short, multiple.

Panama (near Gatun, Canal Zone).

Type, male, No. 41163, U. S. Nat. Mus., bred from water in the leaves of wild pineapple (*Ananas magdalenæ*) growing at the head of Stream No. 7, Agua Clara Reservoir, January, 1928 (C. H. Bath).

Page 53, line 21, for "Phoniomyia" read "Phoniomyia."

Page 56, line 13; delete this line and insert "*petrocchiæ* Shannon and Del Ponte" under Dichotomy 5 in the brace with *argenteorostris, roucouyana,* etc.

Page 68, lines 19, 20, 21, 22, 23, 25, 26, for "*Dentromyia*" read "*Dendromyia.*"

Page 68, line 7 from bottom, add: "This is the type species of *Dendromyia* Theobald, and will replace *Hystatomyia* if the present identification of *lutzi*-*matta* proves to be correct.

Page 116, line 16, for "Susgenus" read "Subgenus."

Page 135, running head, **line 26,** and last line for "*uriati*" read "*uraricæ.*"

Page 155, line 27 for "so" read "se."

Page 164, line 30, add: "Peru (Oxapampa, August 3, 1927, C. H. T. Townsend).

Page 237, lines 1 and 3; omit these lines. *Stenoteras* Theob. (=*pseudostenostrus* Theob.) has been shown by Barraud to be a distinct species (Ind. Journ. Med. Res., xv, 661, 1928).

Page 255, line 4, add: "The larvæ also attach to the roots of a floating grass, *Paspalum repens* Berg."

Page 311, line 3 from bottom, add: "and Brazil."

Of the 6th Officers of Wyoming, Michigan & Indiana Territory
Month of Aug of the Years in the North Western, 14 Jurisdictions & Territ
of the Governors to the Indians

THE MOSQUITOES OF THE AMERICAS

By Harrison G. Dyar

Following the completion of Howard, Dyar, and Knab's "Mosquitoes of North and Central America and the West Indies,"[1] considerable activity has been shown in the study of individual species, especially those of North America, Panama, and the north coast of South America. Some additional collecting has been done in the West Indies and in continental South America south of the Guianas also. There has resulted a radical change in specific synonymy, especially in the widespread tropical species, which it is proposed here to bring up to date. Howard, Dyar, and Knab included the species of Panama and Trinidad, thus tapping the continental tropical fauna and both ends. To include all the known species of the whole of the South American continent does not make a very extensive addition, and they are here included.

The classification adopted in the "Monograph" has not been radically altered by subsequent study. Characters derived from the distribution of the setæ on the pleural sclerites have been added by F. W. Edwards. Dyar and Shannon have recently recognized five tribes instead of the two of the "Monograph." Taking the mosquitoes of the world into consideration, the contention of Edwards is justified that there does not exist at present a known character by which the Sabethini as a tribe can be recognized. In the American fauna there is no such difficulty, and I therefore retain this well-marked group under the name. The peculiar larval character of being without the median ventral brush on the anal segment may yet be found to be reflected in some adult structure. This character appears to be fundamental, for species of other groups which have adopted the same habitat as the larval Sabethini, namely, the confined spaces between leaves and bracts holding water, have not acquired a similar structure, not even in indication.

Two genera proposed by Lynch Arribálzaga have caused much confusion on account of errors and contradictions in the original descriptions. I have decided to accept *Heteronycha* in the sense of *Culex* (Ins. Ins. Mens., ix, 150, 1921), and *Tæniorhynchus* in the

[1] Carnegie Inst. Wash. Pub. No. 159 (4 vols. 1912, 1915, 1917.)

sense of *Aëdes*. This latter interpretation has been disputed by English and American authors; but the type of a genus is a name, not a species, according to the rules. Therefore the type of *Tæniorhynchus* Lynch is *tæniorhynchus* Wied. as in the "Monograph," not *tæniorhynchus* Lynch (non Wied) = *titillans* Walk., as Theobald and his followers would have it.

The names of the various parts of adult and larva used in the keys and descriptions may be understood from the diagrams (Figs. 1 to 3). "Mosquitoes" as here treated constitute the subfamily Culicinæ of the family Culicidæ of the order Diptera, or two-winged flies.

Bibliographical references contained in the "Monograph" are not repeated here, except as to original description. To these, subsequent references of importance are added. Names originally proposed are cited in SMALL CAPITALS.

For detailed discussion and anti-mosquito work the monograph of Howard, Dyar, and Knab is referred to. The present volume is to be considered as a supplement to it.

I have not adhered to the rule that generic names which differ in a few letters, but are otherwise essentially the same, should be preserved. According to this rule, *Theobaldius, Theobaldia, Theobaldium,* and *Theobaldion* are all valid names for different groups of animals; *Carrollia* Lutz would not be preoccupied by *Carolia* Cantr. or *Carollia* Gray; the incorrectly transliterated *Runchoymia* Theobald would not be invalidated by the correctly formed *Rhynchomyia* Robineau-Desvoidy, etc. It seems to me that this is pushing the rule of priority beyond its proper limits. It is difficult enough for taxonomic workers and bibliographers to keep track of generic names when they are fairly distinct and convey their separate meanings; but when the names are essentially identical, differing only by some trick of spelling, the burden on the student is unnecessarily increased.

I am especially indebted to Dr. L. O. Howard, lately retired as Chief of the Bureau of Entomology, U. S. Department of Agriculture, for his interest in and furtherance of this work. Dr. Howard has foregone any participation in the present volume in the interest of brevity; but without his encouragement, it probably would never have been written. Dr. F. M. Root, of the Johns Hopkins University School of Hygiene and Public Health, permitted me to study without reserve his extensive collections made in Brazil. Dr. M. Núñez Tovar, of Maracay, Aragua, Venezuela, has communicated to me freely the results of his investigations of the inhabitants of water-bearing plants in that country. Mr. J. B. Shropshire, Sanitary Inspector for the Army in the Canal Zone, has sent in much interesting material, and lately Dr. D. P. Curry, of the Health Department, Canal Zone, Panama, has made some special researches of the mosquitoes inhabit-

ing Araceæ. Mr. R. C. Shannon, returning from Argentina as this manuscript was going to press, has shown me all the species collected by him in that country, except in the genus *Culex*. For all of this information my thanks are extended to these gentlemen. Dr. and Mrs. Bonne's book, "The Mosquitoes of Surinam," has been freely drawn upon for details of those local species of which I have no material. Not only myself, but science in general, is indebted to them for this accurate and painstaking work. The drawings were made by Miss Eleanor T. Armstrong and Miss Mary C. Foley.

The characters of the male hypopygium, while excellent for generic and specific differentiation, fail to separate all of the five tribes here recognized. The Anophelini may be separated by the single tubular ædœagus, absent in the other tribes; the Uranotæniini by the finely divided mesosome, with a pair of opposed processes on the main segment; but the Megarhinini, Sabethini, and Culicini do not show differential characters throughout. The basic type is the same, basal lobe on side piece, simple paired tenth sternites and mesosome. The Megarhinini have not risen above this simple type, but the Sabethini and Culicini have only the lowest members of this type, the Sabethini showing remarkable differentiations in the clasper, while the Culicini retain a relatively simple clasper, but show differentiations in the structure of the lobes of the side-piece *(Aëdes)* or of the tenth sternites and mesosome (*Culex*).

The larvæ may be separated into five tribes here used, as follows:

1. Air-tube short, sessile; head elongate elliptical . . . . . *Anophelini*
   Air-tube distinctly elongate; head generally short 2
2. Head (last stage) elongate elliptical . . . . . *Uranotæniini*
   Head rounded or transverse, not elongate 3
3. Anal segment without median ventral brush . . . . . *Sabethini*
   Anal segment with median ventral brush 4
4. Eighth segment laterally without pecten, having a plate with two coarse setæ, *Megarhinini*
   Eighth segment laterally with a pecten consisting of small teeth . . . . . *Culicini*

The Anophelini, Uranotæniini, and Megarhini have but one genus each; larval genera of the Sabethini do not run parallel to those of the adult with the characters at present used; but the genera of the Culicini may be separated as follows on larval characters:

1 Air-tube without pecten 2
  Air-tube with pecten 4
2. Air-tube truncated, with a saw-toothed projection . . . . . *Mansonia* Blanchard
   Air-tube not so modified 3
3. Antennæ small . . . . . *Orthopodomyia* Theobald
   Antennæ inflated . . . . . *Aëdeomyia* Lynch Arribálzaga
4. A single paired hair-tuft on air-tube (rarely with additional hairs) 5
   Air-tube with several tufts (if obsolete, the tube is much elongated) 7

5. Head with lateral pouches, covering projections of the maxillæ, *Deinocerites* Theobald
   Without this structure 6
6. Mouth-brushes prehensile, or air tube or antennæ much inflated, *Psorophora* Robineau-Desvoidy
   Without these peculiar modifications . . . . . { *Aëdes* Meigen / *Hæmagogus* Williston }
7. Mouth-brushes prehensile . . . . . *Lutzia* Theobald
   Mouth-brushes normal, ciliform . . . . . *Culex* Linnæus

Family CULICIDÆ

Subfamily CULICINÆ

Table of American Tribes and Genera

1. Base of hind coxa in line with upper margin of lateral metasternal sclerite; spiracular setæ not absent when proepimeral setæ are present 2
   Base of hind coxa distinctly below upper margin of lateral metasternal sclerite (including *Hæmagogus,* which has spiracular setæ absent, proepimeral setæ present, but hind coxa as above) 12
2. Clypeus much broader than long; scutellar posterior margin evenly rounded; postnotal setæ absent . . . . . Tribe Megarhinini, Genus *Megarhinus*
   Clypeus at least as long as broad, usually longer; scutellum trilobed; postnotal setæ present . . . . . Tribe Sabethini 3
3. No pronotal setæ (see *Isostomyia espini*) prothoracic lobes not widely separated 4
   Pronotal setæ present (except *espini*); lobes widely separated 10
4. No prealar setæ 5
   Prealer setæ present 6
5. No propleural setæ . . . . . Genus *Sabethes*
   Propleural setæ present . . . . . Genus *Sabethoides*
6. No spiracular setæ . . . . . Genus *Limatus*
   Spiracular setæ present 7
7. Lower sternopleurals distinctly below upper margin of lateral metasternal sclerite 8
   These setæ extending as far as, usually above this point 9
8. Wing-scales, especially the outstanding ones on bases of R_2 and R_3 broad, Genus *Miamyia*
   Wing-scales in this position generally narrow . . . . . Genus *Wyeomia*
9. Wing-scales broad . . . . . Genus *Dendromyia*
   Wing-scales narrow . . . . . Genus *Menolepis*
10. Clypeus without setæ 11
    Clypeus setose . . . . . Genus *Joblotia*
11. Lower sternopleural setæ distinctly below upper margin of lateral metasternal sclerite; palpi very small in both sexes . . . . . Genus *Isostomyia*
    These setæ extending above the margin of the sclerite mentioned . . Genus *Goeldia*
12. Scutellum trilobed, with marginal setæ only on the lobes 13
    Scutellum generally crescent-shaped, evenly setose; palpi of the female long, Tribe Anophelini, Genus *Anopheles*
13. Anal vein extending well beyond fork of cubitus; wings villose . Tribe Culicini 14
    Anal vein ending opposite or basad of cubital fork; wings without villi, Tribe Uranotænini, Genus *Uranotænia*
14. With many characters of Sabethini, but prescutellar setæ absent and postspiracular setæ absent . . . . . Genus *Hæmagogus*
    Prescutellar setæ present 15

15. Postspiracular setæ present 16
Postspiracular setæ absent 18

16. Spiracular setæ absent 17
Spiracular setæ present, sometimes small . . . . . Genus *Psorophora*

17. Wing-scales mostly narrow, or when broad, setæ are present on upper side of the base of first vein . . . . . Genus *Aëdes*
Wing-scales broad; setæ absent on upper side of base of first vein, Genus *Mansonia,* subgenera *Mansonia* and *Rhynchotænia*

18. Lower side of base of first vein distinctly pilose; spiracular setæ present, Genus *Culicella*
Lower side of base of first vein scaly or bare; spiracular setæ absent 19

19. No setæ on upper side of base of first vein; wing-scales broad 20
Setæ present in this area; wing-scales narrow 22

20. No mid mesepimeral setæ; fourth tarsal joint of fore tarsus at least as broad as long . . . . . Genus *Orthopodomyia*
Mid mesepimeral setæ present; fourth fore tarsal joint not shortened 21

21. Post marginal wing-scales longer than width of anal cell; antennal joints but little longer than broad . . . . . Genus *Aëdeomyia*
Post marginal wing-scales shorter than width of anal cell; antennal joints much longer than broad . . . . . Genus *Mansonia,* subgenus *Coquillettidia*

22. Mid mesepimeral setæ numerous . . . . . Genus *Lutzia*
These setæ absent or few, about three at most 23

23. Antenna much longer than length of proboscis . . . . . Genus *Deinocerites*
Antenna not longer than proboscis . . . . . Genus *Culex*

This system is difficult, requiring careful microscopic observation of the pleural setæ. The following is suggested for preliminary determination:

1. Setæ are present on the postnotum. This includes all the Sabethini, some species of *Hæmagogus,* and some of *Deinocerites.* The *Deinocerites* can be at once excluded by the long antennæ, *Culex* aspect, and position of the base of hind coxæ. *Hæmagogus* greatly resembles the Sabethini and may be confused. The tendency to transverse bands on the abdomen will often separate it; for certainty resort to the table. Of the genera of Sabethini, *Sabethes* can be recognized by the scale-paddles on the legs; *Goeldia* by the large size (in general); but for details the table must be used from dichotomy 4.

2. There are no setæ on the postnotum. The collar-like scutellum will separate the Anophelini, the absence of microtrichia on the wings the Uranotænini, the large size and curved proboscis the Megarhini, these tribes with one genus each, leaving only the Culicini. In the case of males, the table may be used; females divide into two series, one with the abdomen sharply pointed, including *Psorophora* and *Aëdes* and second with the abdomen blunt, including the other genera. *Orthopodomyia, Mansonia,* and *Aëdeomyia* have broad wing-scales, not readily separable apart from the table; *Lutzia, Deinocerites,* and *Culex* narrow ones. *Psorophora* has the abdomen more retracted than *Aëdes,* involving one more segment; this and the spiracular setæ

will seperate them. In the other group, *Deinocerites* comes out by the long antennæ; *Lutzia* has the wings spotted, which occurs in no American *Culex*.

Tribe SABETHINI

Sabethini Howard, Dyar and Knab, Mosq. No. and Cent. Am. and W. I., iii, 19, 1915.
Sabethini Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 478, 1924.

Generally day-flying, variously colored mosquitoes, the vestiture of often brilliantly colored scales, the setæ reduced. All the species possess setæ on the postnotum. Some species will occasionally bite warm-blooded animals and man, but many feed exclusively upon reptiles. None of the species are ever numerous in individuals, and none carry disease. The whole tribe is completely negligible economically.

The larvæ of all the known species live in collections of water in plant tissues, either living or dead, such as that between leaves or bracts of flowers or in cavities in decaying wood. The several species are generally restricted to the moisture in certain particular plants, in the case of living plants. Two genera are predacious in larval habit, eating the larvæ of other species of Sabethini. A few are predacious also on other culicids. The scarcity and extremely restricted breeding-places of all the species render it impossible that any species should ever be numerous in great degree.

Members of this tribe are recognizable from other American mosquitoes by the presence of setæ on the posterior part of the postnotum, except certain species of *Hæmagogus* and *Deinocerites*. From these by the base of hind coxa being in line with the upper margin of lateral metasternal sclerite (excludes *Deinocerites*) and the spiracular setæ not absent when pro-epimeral setæ are present (excludes *Hæmagogus*).

The sabethids, according to their life habits of living in water held in the tissues of plants, require a climate with abundant moisture and rainfall. The stronghold of the group is in the countries bordering on the Carribean Sea, and this divides into three regions. First the western, Central America, Panama, western Colombia to Ecuador; second the southern, northern Colombia, Venezuela, the Lesser Antilles, and the Guianas, probably extending to Bolivia; third the northern, embracing the Greater Antilles and southern Florida. Some of the species of the first and second groups are common to both, but the species of the third group are mainly endemic and peculiar. The abundance of the tribe is reduced in Brazil by the absence of the water-bearing plants, the Heliconias (*Bihai, Calathea,* etc.). The species are mostly confined there to Bromeliaceæ and Araceæ for living plant tissues. Tree-holes, bamboo-joints, and broken fallen nuts occur in all the American tropics. The west coast of America south of Ecuador appears to harbor no sabethids whatever, on account of arid conditions. In the North Temperate region one species attains a considerable northward extension from being associated with the water-bearing pitcher-plant (*Sarracenia*). No such southern extension has been discovered.

Genus SABETHES Robineau-Desvoidy

Sabethes Robineau-Desvoidy, Mem. Soc. d'Hist. Nat. Paris, iii, 411, 1827.
Sabettus Scudder, Bull. 19, U. S. Nat. Mus., i, 297, 1882.
Sabethes Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 23, 1915.

Sabethes Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 23, 1924.
Sabethes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 479, 1925.

A genus of rather large, showy day-flying mosquitoes, brilliantly colored and with paddle-shaped tufts of scales on the legs. The setal vestiture is largely obsolete, having given way to brilliant scaling. The species are timid in approach, but if given the opportunity will bite warm-blooded animals. The bite is said to be painful. The larvæ, so far as known, are predacious upon mosquito larvæ living in tree-holes. The maxillæ of the larva are furnished with a horn and side-teeth. The tree-hole breeding species are never abundant on account of their restricted breeding-places; therefore the *Sabethes* are rarer still.

The genus is characterized by the reduction of the pleural setæ, no prealar setæ, no propleural setæ. The prothoracic lobes are well developed and contiguous dorsally. The wing scales are broad. Mid femora elongate.

Table of Species

ADULT

1. Mid legs only with tufts 2
   Front legs also with tufts 5
   Hind legs also with tufts (all three pair) 7
2. Tufts on mid tibia, not on tarsus . . . . . *remipusculus* Dyar
   Tuft also on the tarsus 3
3. No white on the legs 4
   White markings on some of the tarsi . . . . . *bipartipes* Dyar and Knab
4. Abdominal colors separated in a nearly straight line; tufts involving first two mid tarsal joints . . . . . *cyaneus* Fabricius
   Abdominal colors separated in an irregular line; tuft involving first tarsal joint only . . . . . *albiprivus* Theobald
   Abdomen with segmental purple bands reaching near ventral line . . *neivai* Petrocchi
5. A patch of white scales on mid tibia between tuft and base . *tarsopus* Dyar and Knab
   Without this white marking 6
6. Paddle on mid legs white at tip . . . . . *amazonicus* Gordon and Evans
   Paddle of mid legs entirely black . . . . . *longfieldæ* Edwards
7. Tarsi marked with white 8
   Tarsi without white markings . . . . . *lutzii* Theobald
8. Fore tarsi with white on second to fourth joints . . *goeldii* Howard, Dyar, and Knab
   Fore tarsi with white on one side of second joint . . . . . *schausi* Dyar and Knab

MALE HYPOPYGIUM

1. Curved arm of clasper not larger than the head . . . . . *bipartipes* Dyar and Knab
   This arm large, curved in a large arc, larger than the head 2
2. Branch in center of curved arm long, elliptical . . . . . *cyaneus* Fabricius
   This branch shorter, expanded . . . . . *albiprivus* Theobald

Males are unknown in the following species: *Lutzii, goeldii, schausi, tarsopus, neivai, amazonicus, longfieldæ,* and *remipusculus.*

LARVA

1. Air-tube conically tapered, densely spicular, with few weak single hairs; lateral comb on a narrow transverse plate . . . . . *bipartipes* Dyar and Knab

This is the only larva known in the genus.

SABETHES GOELDII Howard, Dyar, and Knab

Sabethes longipes Peryassú (not Fabricius), Os Cul. do Braz., 281, 1908.
SABETHES GOELDII Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 24, note, 1915.
Sabethes goeldii Dyar, Ins. Ins. Mens., vii, 20, 1919.
SABETHES BELISARIOI Neiva, Brazil-Medico, xxii, 351, 1922.
Sabethes longipes Peryassú (not Fabricius), A Folha Medica, iv, 86, 1923.
Sabethes belisarioi Peryassú, A Folha Medica, iv, 86, 1923.
Sabethes goeldii Dyar, Ins. Ins. Mens., xii, 99, 1924.
Sabethes goeldii Bonne and Bonne-Wepster, Mosq. of Surinam, Roy. Col. Inst. Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 34, 1925.

Female—Proboscis moderately long, stout, uniform, black with bluish tint. Prothoracic lobes dark dull blue. Mesonotum with brilliant green metallic scales; pleuræ and coxæ with dense silvery white scales. Postnotum silver-scaled. Abdomen compressed laterally, the ventral scales forming a projecting ridge, dull metallic green above, silvery white below, the colors separated on the sides in a straight line. Wing-scales broad, tips truncate, some ligulate ones on the forks of the fifth vein, all dark. Legs black, with coppery and violet reflections; fore tibia with long black scales on two sides of the distal two-thirds; first joint of the tarsi with long scales on one side; second, third, and fourth joints more or less extensively white; mid legs, tibiæ with dark, long scales on two sides, preceded by a white mark on one side only; first joint of tarsi with equally long scales on two sides, second joint with white raised scales on one side; joints 2 to 4 white. Hind legs with the joints elongated, the tibia slightly swollen at tip, without raised scales; first tarsal joint with a rather small area of raised scales on two sides at tip, other joints smoothly scaled; joints 4 and 5 white except dorsally.

Male—Unknown.

Larva—Unknown.

Brazil, Trinidad, and Surinam. Very occasional. Only captured females are known.

SABETHES SCHAUSI Dyar and Knab

SABETHES SCHAUSI Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 63, 1908.
SABETHES OCHAUSI Theobald, Mon. Culic., v, 622, 1910.
Sabethes schausi Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 24, 1915.
Sabethes schausi Dyar, Ins. Ins. Mens., vii, 120, 1919.
Sabethes schausi Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 2, 1921.
Sabethes schausi Dyar, Ins. Ins. Mens., xii, 99, 1924.
Sabethes schausi Bonne and Bonne-Wepster, Mosq. of Surinam, Roy. Col. Inst. Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 24, 1925.
SABETHES ARGYRONOTUM Edwards, Bull. Ent. Res., ——— 1928.

Female—Proboscis moderately long, stout, uniform, black with bluish tint. Prothoracic lobes dark dull blue. Mesonotum with brilliant green metallic scales; pleuræ and coxæ with dense silvery white scales. Postnotum silver-scaled. Abdomen compressed laterally, the ventral scales forming a projecting ridge, dull metallic green above, silvery white below, the colors separated on the sides in a straight line. Wing-scales broad, tips truncate, some narrower ones on the forks of the fifth vein, all dark. Legs black, with coppery and violet reflections; fore tibia with long black scales on two sides of the distal two-thirds; first joint of the tarsi with long scales on one side;

second joint only more or less extensively white-marked; mid legs, tibiæ with long dark scales on two sides, preceded by a white mark; first joint of tarsi with equally long scales on two sides; second joint with white raised scales on one side; joints 2 and 3 white except tip of the latter; hind legs with the joints elongated, the tibia slightly swollen at tip, without raised scales; first tarsal joint with a rather small area of raised scales on two sides of tip, other joints smoothly scaled; joints 4 and 5 white, except dorsally.

Male—Unknown.

Larva—Unknown.

Venezuela, the Guianas, and Bolivia. Beni and Tumupasa, Bolivia (W. M. Mann); Venezuela, "No. 28" (M. Núñez Tovar). This differs from *goeldii* only in having somewhat less of white on the fore and mid tarsi. The amount of white is presumably variable. This is probably but a variation of *goeldii* and not a distinct species. Very occasional. Only captured females are known. The name is older, and if the species proved the same will take precedence of *goeldii*. Edwards separates *argyronotum* upon the somewhat different position of the paddle on the fore tibia; but the character seems of doubtful value.

SABETHES LUTZII Theobald

SABETHES LUTZII Theobald, Mon. Culic., ii, 323, 1903.
Sabethes lutzii Peryassú, Os. Culic. do Braz., 283, 1908.
Sabethes lutzii Theobald, Mon. Culic., v, 576, 1910.
Sabethes lutzii Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venes., 242, 1911.
Sabethes lutzii Dyar, Ins. Ins. Mens., vii, 120, 1919.
Sabethes lutzii Peryassú, A Folha Medica, iv, 86, 1923.
Sabethes lutzii Dyar, Ins. Ins. Mens., xii, 99, 1924.
Sabethes lutzii Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), Afd. Trop. Hyg. No. 13, 35, 1925.

No detailed description of this species has ever been printed. It is said to be dark metallic blue in general, all the legs with raised tufts of scales but without any white markings.

Described from Brazil, from a female only. No specimens of the species are before me. Male, larva, and life-history unknown.

This species should have all the structural characters of *goeldii* and *schausi*, differing only in the loss of white on the legs. It may possibly represent but a color variety of *schausi*.

SABETHES TARSOPUS Dyar and Knab

SABETHES TARSOPUS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 62, 1908.
Sabethes tarsopus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 25, 1915.
Sabethes tarsopus Dyar, Ins. Ins. Mens., vii, 119, 1919.
Sabethes tarsopus Bonne-Wepster and Bonne, Ins. Ins. Mens. ix, 2, 1921.
Sabethes tarsopus Dyar, Ins. Ins. Mens., xi, 168, 1923.
Sabethes tarsopus Dyar, Ins. Ins. Mens., xii, 99, 1924.
Sabethes tarsopus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 35, 1925.
Sabethes tarsopus Dyar, Ins. Ins. Mens. xiii, 105, 1925.

Female—Proboscis moderate, stout, uniform, black with violet luster. Clypeus densely white-frosted; postnotum covered with flat silvery scales. Prothoracic lobes dark metallic green. Pleuræ and coxæ with silvery white

scales. Mesonotum with metallic blue-green scales. Abdomen compressed laterally, metallic blue-green above, silvery white below, the scales slightly projecting along the ventral line, the colors separated in a straight line on the sides. Fore legs black with violet reflection, apical half of the tibia with raised scales on one side, slightly roughened on the other side also; joint 3 and part of joint 4 white on one side. Mid legs with raised scales on two sides of the apical half of tibia and first tarsal joint, black, preceded by a white spot on the tibia on one side; second, third, and most of the fourth tarsal joints are white, the second with a fringe of white scales on one side. Hind legs black, fourth and fifth joints white on one side; tibiæ scarcely enlarged at tip, first tarsal joint with slight raised scales at tip. Wing-scales broad with truncate tips, narrower on the forks of the fifth vein.

Male—Unknown.

Larva—Unknown.

Mexico, Costa Rica, Panama, Venezuela. Occasional females captured. Valera, Venezuela (Trujillo), said to bite man; Ocumare de la Costa, Venezuela, January 27 and April 12, 1927 (M. Núñez Tovar); Gatun, Canal Zone, Panama, April, 1920 (C. H. Bath), September, 1924 (J. B. Shropshire); Higuito, San Mateo, Costa Rica (Pablo Schild).

SABETHES AMAZONICUS Gordon and Evans

SABETHES AMAZONICUS Gordon and Evans, Ann. Trop. Med. and Par., xvi, 316, 1922.
SABETHES KAPPLERI Bonne, Ins. Ins. Mens., xi, 122, 1923.
Sabethes amazonicus Dyar, Ins. Ins. Mens., xii, 99, 1924.
Sabethes kappleri and *amazonicus* Bonne and Bonne-Wepster, Mosq., of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 32 and 33, 1925.

Female—Proboscis moderate, rather stout, slightly swollen on the apical third, black with violet luster. Clypeus whitish frosted apically; postnotum denuded in my material, in one specimen one large white scale, Dr. Bonne says "with some greenish scales." Prothoracic lobes dark metallic green. Pleuræ and coxæ with silvery white scales. Mesonotum with metallic blue-green scales. Abdomen compressed laterally, metallic blue-green above, silvery white below, the scales slightly projecting along the ventral line, the colors separated in a straight line on the sides. Fore legs black with violet reflection, apical half of the tibia with raised scales on one side, slightly roughened on the other side also; joint 2 at tip, 3 to 5 white, except ventrally. Mid legs with raised scales on two sides of the apical half of tibia and first tarsal joint, black; second, third, and most of fourth tarsal joints white, the second with a fringe of white scales on one side. Hind legs black, fourth and fifth joints white on one side; tibiæ scarcely enlarged at tip, first tarsal joint with slight raised scales at tip. Wing-scales broad with truncate tips, narrower on the forks of fifth vein.

Male—Unknown.

Larva—Unknown.

Surinam and Brazil. Occasional females captured. This species comes very close to *tarsopus*, and may be a southern race of it, lacking the white on mid tibiæ. None of the material examined shows the white scales on the postnotum so conspicuous in *tarsopus*, but the material is not in good condition. Dr. Bonne mentions the species as "attacking in the day time."

SABETHES LONGFIELDÆ Edwards

SABETHES LONGFIELDÆ Edwards, Bull. Ent. Res., ——— 1928.

Female—Proboscis moderate, rather stout, slightly swollen on apical third, blue-black. Clypeus silvery frosted; postnotum with four black bristles and a few inconspicuous dark scales. Prothoracic lobes metallic green. Pleuræ and coxæ with silvery white scales. Mesonotum with metallic-green scales. Abdomen green above, white below, the colors separated in a rather irregular line. Fore legs blue; tibia with a fringe of scales on the outer half, especially on the upper side; tarsi with a little white beneath at the tip of third joint and base of fourth. Mid legs with a paddle on both sides of outer half of tibia and first tarsal joint; second tarsal joint white on the apical half, third joint white. Hind legs without paddles, fourth and fifth joints white on one side. Wing-scales broad with truncate tips.

Male—Unknown.

Larva—Unknown.

Brazil (Melguierra, Rio Amolar).

Differs from *amazonicus* G. and E. in having the paddle of the mid legs all black instead of with a white tip. In *tarsopus* of northern distribution, the paddle is marked with white at base and tip; in *amazonicus*, at tip only, while in *longfieldæ* the white has migrated beyond the tuft. These three forms are probably geographical races of one species, rather than distinct; but without males or larvæ need not be too hastily united.

SABETHES CYANEUS (Fabricius)

CULEX CYANEUS Fabricius, Syst. Antliat., 35, 1805.
SABETHES LOCUPES Robineau-Desvoidy, Mem. Soc. d'Hist. Paris, iii, 412, 1827.
CULEX REMIPES Wiedemann, Ausser. Zweifl. Ins., i, 573, 1828.
Sabethes cyaneus Howard, Dyar and Knab, Mosq. No. and Cent. Am., iii, 26, 1915.
Sabethes cyaneus Dyar, Ins. Ins. Mens., vii, 120, 1919.
Sabethes cyaneus Dyar, Ins. Ins. Mens., ix, 149, 1921.
Sabethes cyaneus Dyar, Ins. Ins. Mens., x, 62, 1922.
Sabethes cyaneus Dyar, Ins. Ins. Mens., xi, 168, 1923.
Sabethes cyaneus Peryassú, A Folha Medica, iv, 86, 1923.
Sabethes cyaneus Dyar, Ins. Ins. Mens., xii, 99, 1924.
Sabethes cyaneus Dyar, Ins. Ins. Mens. xiii, 105, 1925.
Sabethes cyaneus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 30, 1925.
Sabethes cyaneus Dyar, Ins. Ins. Mens., xiv, 111, 1926.

Female—Proboscis moderate, stout, slightly swollen at tip, black. Prothoracic lobes bright blue-green. Mesonotum metallic blue. Postnotum nude. Scales on pleuræ and coxæ grayish silvery. Abdomen compressed laterally, the scales prominent along the ventral line, metallic blue above, silvery yellowish below, the colors separated on the sides nearly in a straight line, somewhat irregular by scattered silver scales. Legs black with violet and coppery reflection, the mid tibiæ and first tarsal joint with long black scales on two sides, the second tarsal joint with some short ones on one side also; some metallic green scales with the tufts. Wing-scales all dark, broad, with truncate tips, narrower on the forks of the fifth vein.

Male—Proboscis slenderer than in the females, with white scales below except at tip. Coloration otherwise the same. Hypopygium (Plate II, Fig. 4): Side-piece stout, conical, heavily chitinized except narrowly on the inner side; three long setæ on the inner side near base; two setæ from a

single tubercle on the inner side toward apex. Clasper with a long, rather slender stem, with an irregular widened truncate apex which bears two stout teeth on one angle, a row of curved spines before it, about four in number, and on the other side a row of eight longer slenderer spines with widened tips; apex with a large recurved angle and two slender spines at tip. On the side away from the two teeth is a long recurved sac-like arm, its tip with a long horn, a clublike appendage, and three overlapping striated wings; at the middle of the curve of the arm a large striated wing from the basal membrane forming two large and two small tubercular pads. Tenth sternites long, slender, the tip thickened and with a tooth, the top of the inner membranous area forming a short projection. Ninth tergites a rather narrow transverse bar, roundedly thickened centrally; on each side about twelve long hairs, stout at base but tapering to fine points. Mesosome inconspicuous, composed of several plates.

Larva—The larva is unknown. A specimen was bred from a tree-hole (Empire, Canal Zone, Panama, February, 1926, J. B. Shropshire), so that it is probable that the larvæ are predacious upon other mosquito larvæ inhabiting the water in tree-holes.

Honduras, Panama, Venezuela, Surinam, Trinidad, Brazil. The females fly by day, and are said to hover around a long time before biting; but the bite is painful.

SABETHES ALBIPRIVUS Theobald

SABETHES ALBIPRIVUS Theobald, Mon. Culic., iii, 323, 1903.
SABETHES ALBIPRIVATUS Theobald, Mon. Culic., iv., 595, 1907.
Sabethes albiprivatus Peryassú, Os Culic. do Braz., 284, 1908.
Sabethes albiprivatus Theobald, Mon. Culic., v, 375, 1910.
Sabethes albiprivatus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 240, 1911.
Sabethes albiprivus Dyar, Ins. Ins. Mens., vii, 120, 1919.
Sabethes albiprivus Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 2, 1921.
SABETHES QUASICYANEUS Peryassú, A Folha Medica, iii, 179, 1922.
Sabethes albiprivatus and *quasicyaneus* Peryassú, A Folha Medica, iv, 86, 1923.
Sabethes albiprivus Dyar, Ins. Ins. Mens., xii, 99, 1924.
Sabethes albiprivus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland). No. xxi, Afd. Trop. Hyg. No. 13, 36, 1925.
Sabethes albiprivus Bequaert, Med. Rep. Rice 7th Exp. Amazon, 195, 1926.

Female—As in the male, except for the coloration of the proboscis.

Male—Proboscis somewhat slender, black, with a white line beneath. Prothoracic lobes bright blue-green. Mesonotum metallic blue. Postnotum nude. Scales on pleuræ and coxæ grayish silvery. Abdomen compressed laterally, the scales prominent along the ventral line, metallic blue above, silvery yellowish below, the colors separated on the sides in a very irregular line. Legs black with violet and coppery reflections, the mid tibiæ and first tarsal joint with long black scales on two sides, the second tarsal joint with shorter ones on one side also. Wing-scales dark, broad, with truncate tips, narrower on the forks of the fifth vein. Hypopygium (Plate II, Fig. 5): Side-piece stout, conical, heavily chitinized, except narrowly on the inner side; three long setæ on the inner side near base; two setæ from a single tubercle on the inner side toward apex. Clasper as in *cyaneus*, all the parts somewhat less developed. Sac-like arm more slender, the apical wings

shorter and condensed, densely striate, brown. Basal appendages as in *cyaneus*.

Larva—The larva is unknown.

Surinam, Brazil. Carveiro, Rio Negros, Amazonas, Brazil, August 1924 (J. Bequaert).

SABETHES NEIVAI Petrocchi

SABETHES NEIVAI Petrocchi, Rev. del Inst. Bact., iv, 725, 1927.

Female—Proboscis moderately stout, black with slight blue reflection. Occiput black, with coppery red reflection posteriorly, white on the side below. Prothoracic lobes metallic blue, white below. Mesonotum metallic green, pleuræ and coxæ with dense silver scales. Abdomen blue with purple reflections, silvery below; a purple band on the anterior side of each segment reaching nearly to the ventral line. Legs black with strong purple reflection, the mid legs with a large paddle occupying the tip of the tibia and most of the first tarsal joint. Wing-scales ovate, black.

Male—Unknown.

Larva—Unknown.

Argentina (San Pedrodo, Jujuy).

One of the types deposited in the U. S. National Museum through the courtesy of the Argentine Government and the good offices of Mr. R. C. Shannon.

SABETHES BIPARTIPES Dyar and Knab

SABETHES BIPARTIPES Dyar and Knab, Proc. Biol. Soc. Wash., xix, 136, 1906.
SABETHES CHROIOPUS Dyar and Knab, Ins. Ins. Mens., i, 70, 1913.
Sabethes bipartipes Howard, Dyar, and Knab, Mosq., No. and Cent. Am. and W. I., iii, 30, 1915.
Sabethes bipartipes and *chroiopus,* Dyar, Ins. Ins. Mens., vii, 120, 1919.
Sabethes bipartipes Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 165, 1919.
Sabethes bipartipes Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 1, 1921.
Sabethes bipartipes Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 98, 1921.
Sabethes bipartipes Dyar, Ins. Ins. Mens., x, 62, 1922.
Sabethes bipartipes Dyar, Ins. Ins. Mens., xi, 168, 1923.
Sabethes bipartipes Dyar, Ins. Ins. Mens., xii, 99, 1924.
Sabethes bipartipes Dyar, Ins. Ins. Mens., xiii, 27, 1925.
Sabethes bipartipes Dyar, Ins. Ins. Mens., xiii, 106, 1925.
Sabethes bipartipes Bonne-Wepster and Bonne, Ins. Ins. Mens., xiii, 32, 1925.
Sabethes bipartipes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 26, 1925.

Female—Proboscis rather long and slender, not as long as the abdomen, black. Prothoracic lobes metallic green. Mesonotum metallic blue-green above, the sides and coxæ with silver scales. Abdomen blue and violaceous above, compressed laterally, the ventral scales forming a line, sordid silvery yellowish below, banded across anteriorly on the segments with violaceous. Metanotum without scales. Legs long, slender, black with violaceous reflection, the middle pair with a paddle-shaped tuft on two sides of the joints, involving the apical half of the tibia, first tarsal joint and base of the second black, white on the apex of first tarsal joint and base of second. Wing-scales moderately broad, the tips truncate, all dark.

Male—As in the female, except that the tufts on the mid tarsi have white tips on the inner side at the end of the tibia. Hypopygium (Plate II, Fig. 6): Side-piece stout, conical, heavily chitinized except on the inner side. A row

of five long hairs from large tubercles near the base. Clasper with a rather long, stout, curved stem, holding the quadrate tip. This consists of about three overlapping plates with a terminal and a lateral row of spines and one long transverse spine at tip; side-arm curved, not expanded nor modified, rather short. Tenth sternites with several small teeth at tip, the thickened margin stout. Ninth tergites with a rather stout bridge a little widened in the middle, each side with five or six long, uniformly shaped, stout spines. Mesosome with a quadrate plate, a stout horn and a slender horn on each side.

Larva (Plate II, Fig. 6)—Dr. Bonne found the larvæ in water in tree-trunks and fallen banana leaf, feeding upon the larvæ of *Limatus* and *Culex*. "Head broad. Lower head-hairs single, upper double, both pairs slight. Antennæ cylindrical, rounded, smooth, a slight tuft of two hairs on outer fifth. Maxillæ conical, with one strong horn at tip and seven teeth on inner margin; a stout rod-like hair near tip. Comb of eighth segment of nine to sixteen simple spines on a strip of chitin. Air-tube conical, spicular, about three times as long as wide; a few small irregularly placed hairs, two strong hooks at tip. Anal segment with the plate reaching half way down the sides; a tuft of two long hairs at ventral angle of plate, a subventral tuft of three hairs; dorsally a tuft of two hairs and a multiple tuft. Anal gills broad, bluntly rounded, longer than the segment."

Ecuador, the Guianas, and the island of Santo Domingo, West Indies. Also reported from Brazil, but no specimen from that country is before me.

The females may be taken flying by day in the forest. The larvæ are predacious upon other larvæ inhabiting the water in open tree-holes and similar situations.

SABETHES REMIPUSCULUS Dyar

SABETHES PURPUREUS Peryassú (not Theobald), Os Culic. do. Braz., 287, 1908.
Sabethes purpureus Theobald, Mon. Culic., v, 575, 1910.
Sabethes purpureus Surcouf and Gonzales Rincones, Dipt. Vul. Venez., 241, 1911.
Sabethes purpureus Dyar, Ins. Ins. Mens., vii, 119, 1919.
Sabethes purpureus Peryassú, A Folha Medica, iv, 86, 1923.
SABETHES REMIPUSCULUS Dyar, Ins. Ins. Mens., xii, 100, 1924.
Sabethes purpureus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 36, 1925.

Female—Proboscis slightly enlarged at tip, dark purplish. Clypeus white frosted. Prothoracic lobes with metallic purple scales. Mesonotum with iridescent green and violaceous scales, pleuræ and coxæ with silvery white ones. Metanotum nude. Abdomen laterally compressed, metallic purple above, golden yellow below, the first segment silvery with purplish zones. Legs dull purplish, the middle pair with a small paddle of long purplish scales at the apex of the tibiæ. Wing-scales broad with truncate tips, all dark.

Male—Unknown.

Larva—Unknown.

Brazil. No specimen of this form is before me.

Genus SABETHOIDES Theobald

SABETHOIDES Theobald, Mon. Culic., iii, 328, 1903.
SABETHINUS Lutz, in Bourroul, Mosq. do Brasil, 48, 57, 1904.
Sabethoides Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 479, 1924.
Sabethoides Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 37, 1925.

This genus includes a group of species intermediate between *Sabethes* and the small species included in *Wyeomyia, Dendromyia*, etc. The species are less showy than *Sabethes*, day-flying and fairly brilliant in coloration. The setæ on the pleuræ are reduced, although not to quite the extent found in *Sabethes*. The larvæ are found in tree-holes or bamboo, and they have similar mouth-parts to those of *Sabethes;* nevertheless they are probably not predacious, but use the armed maxillæ to masticate larger particles of vegetable detritus in the water. The adults will bite warm-blooded animals, but there are few observations on their habits on record. All the species are rare. Formerly two species were not uncommon in Panama in the Chagres Valley; but both were exterminated by the destruction of the bamboo.

In this genus the pleural setæ are less reduced than in *Sabethes,* propleural setæ being present. Prothoracic lobes and wing-scales as in *Sabethes;* mid femora not elongate.

Table of Species

ADULT

1. Proboscis long and slender, not distinctly swollen at tip 2
   Proboscis short, stout, more or less swollen at tip 4
2. Abdominal colors confused, not separated in a line laterally 3
   Abdominal colors separated in a straight line laterally,
   glaucodæmon Dyar and Shannon
3. Abdomen with lateral patches of white scales,
   imperfectus Bonne-Wepster and Bonne
   Abdomen with white not definitely in patches . . . . . *chloropterus* Humboldt
4. Prothoracic lobes blackish-scaled with white at base and tip 8
   Prothoracic lobes metallic blue and purple 5
5. Abdomen purple and coppery above . . . . . *purpureus* Theobald
   Abdomen greenish or bluish above 6
6. Mesonotum metallic blue . . . . . *melanonymphe* Dyar
   Mesonotum metallic green 7
7. Abdomen metallic blue . . . . . *aurescens* Theobald
   Abdomen dull violet with partial metallic luster . . . . . *undosus* Coquillett
8. Mid tarsi white-marked . . . . . *serratoria* Dyar and Núñez Tovar
   Tarsi all dark . . . . . *moerbista* Dyar and Knab

MALE HYPOPYGIUM

1. Clasper with three angular wing-shaped arms and club-shaped head,
   chloropterus Humboldt
   Clasper without wing-shaped arms or central head 2
2. Terminal arm elongate, transverse, setose . . . . . *aurescens* Theobald
   This arm lateral, transverse, forming a broad fimbriate and setose plate,
   undosus Coquillett

The following species are unknown in the male: *Imperfectus, glaucodæmon, serratoria, moerbista, purpureus,* and *melanonymphe.*

LARVA

1. Air-tube tapered, spicular with single median hair and weak posterior fringe,
   chloropterus Humboldt
   No posterior fringe, a few scattered hairs 2
2. Dorsal hooks of seventh segment toothed . . . . . *aurescens* Theobald
   These hooks simple . . . . . *undosus* Coquillett

The following species are unknown in the larva: *Imperfectus, glaucodæmon, serratoria, moerbista, purpureus,* and *melanonymphe.*

SABETHOIDES CHLOROPTERUS (Humboldt)

CULEX CHLOROPTERUS Humboldt, Voy. Reg. Equin., Hist., vii, 119, 1820.
SABETHES NITIDUS Theobald, Mon. Culic., ii, 347, 1901.
SABETHOIDES CONFUSUS Theobald, Mon. Culic., iii, 328, 1903.
SABETHOIDES RANGELI Surcouf and Gonzales Rincones, Essai Dipt. Vul. Venez., 251, 1911.
Sabethoides nitidus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 37, 1915.
Sabethoides nitidus Dyar, Ins. Ins. Mens., vii, 120, 1919.
Sabethoides nitidus Bonne-Wepster and Bonne, Ins. Ins. Mens., xi, 2, 1921.
Sabethoides nitidus Dyar, Ins. Ins. Mens., ix, 116, Pl. II, fig. 7, 1921.
Sabethoides nitidus Gordon and Evans, Am. Trop. Med. and Par., xvi, 317, 1922.
Sabethoides chloropterus Dyar, Ins. Ins. Mens., xi, 122, 1923.
Sabethoides chloropterus Dyar, Ins. Ins. Mens., xi, 168, 1923.
Sabethoides nitidus Peryassú, A Folha Medica, iv, 87, 1923.
Sabethes chloropterus Dyar, Ins. Ins. Mens., xii, 100, 1924.
Sabethoides chloropterus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland). No. xxi, Afd. Trop. Hyg. No. 13, 43, 1925.
Sabethoides chloropterus Dyar, Ins. Ins. Mens., xiii, 107, 1925.

Female—Proboscis long and slender, not as long as the abdomen, dark. Prothoracic lobes blue-green. Mesonotum with blue-green scales, postnotum nude; pleuræ and coxæ with grayish silvery scales. Abdomen laterally compressed, the venter narrow, forming a series of tufts of whitish golden scales. Dorsally dull purple to green, showing green, purple, and whitish on the sides, mottled, changing with the light, not forming any definite markings except on the basal segments, where the whitish scales predominate. Legs slender, black with purplish reflection, the mid tarsi white on apex of second, third and base of fourth on the outer side. Wing-scales broad with truncate tips, narrower on the forks of the fifth vein, all dark.

Male—Proboscis white below except at tip; otherwise colored as in the female. Hypopygium (Plate II, Fig. 7): Side-piece stout, broadly conical, heavily chitinized on the outer side. One large and two smaller setæ toward base. Two small setæ on a separate chitinization within toward tip. Clasper with a moderate stem, slender, shortly swollen at base, conically widened at tip and bearing four or more irregularly shaped arms; three of these arms are slender, more or less winged at tip, one strongly so; fourth arm club-shaped with marginal spines. Tenth sternites with a narrow chitinized margin and five small teeth at tip. Ninth tergites forming a slender bridge, the two groups of setæ approximate, six each, rather slender at base, widening on outer third, and with sharp slightly curved tip. Mesosome a pair of long, somewhat swollen appendages.

Larva (Plate II, Fig. 7)—Larvæ were found in a tree-hole in forest near Manáos, Brazil, and brought to England alive. Miss Evans describes them as follows: Head broad. Maxillæ resembling those of *Sabethoides undosus* with four or five teeth on the inner margin. Comb of the eighth segment of twenty spines arising from membranous integument, spines thorn-shaped, some with a secondary pointed process. Air-tube three and a third times as long as wide, with groups of microscopic hairs (spiculate);

a row of delicate subequal hairs arising from the posterior margin for more than two-thirds of its length (posterior fringe). Anal segment with plate reaching about half way down the segment, dorsal angle on each side with two tufts of two setæ; subventrally a tuft of two and a tuft of three setæ; lateral angles of plate with a tuft of two and a tuft of three setæ at each side. Anal gills subcylindrical, bluntly rounded, about three-fifths as long as air-tube.

Mexico, Costa Rica, Salvador, Nicaragua, Panama, Venezuela, the Guianas, Trinidad, Brazil, Argentina (Iguazu, Misiones, R. C. Shannon).

The females fly by day and approach to bite, but are seldom abundant and never vicious. It has not been determined whether the larvæ are predacious upon other larvæ living in the water in tree-holes or are themselves vegetable-feeders.

SABETHOIDES IMPERFECTUS Bonne-Wepster and Bonne

SABETHOIDES IMPERFECTUS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 165, 1920.
Sabethoides imperfectus Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 5, 1921.
Sabethoides imperfectus Edwards, Bull. Ent. Res., xiii, 79, 1922.
Sabethes imperfectus Dyar, Ins. Ins. Mens., xii, 100, 1924.
Sabethoides imperfectus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 41, 1925.

Female—Proboscis moderate, stout, uniform, black. Prothoracic lobes bright greenish blue. Mesonotum metallic green-scaled, pleuræ and coxæ with dense silver scales. Postnotum with scattered small white scales, and stout bristles posteriorly. Abdomen compressed laterally, the venter with grayish white scales which project along the ventral line; dark purple above, the segments basally with broad but irregular bands of submetallic whitish scales, which change in tint according to the incidence of the light. These bands are less white and less distinct than the ventral color. Legs slender, black; mid tarsi with tip of second joint, all of third and base of fourth white-marked outwardly. Wing-scales broad, the tips obliquely truncate, narrower on the forks of the fifth vein.

Male—Unknown.

Larva—Unknown.

Surinam and British Guiana.

SABETHOIDES GLAUCODÆMON Dyar and Shannon

SABETHOIDES GLAUCODÆMON Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 39, 1925.

Female—Proboscis moderate, uniform or slightly enlarged apically, black. Prothoracic lobes blue-green. Mesonotum with green scales, the pleuræ and coxæ silvery white scaled. Postnotum nude. Abdomen laterally compressed, the ventral scales forming a ridge; dorsally blue and violet, changing with the incidence of the light, somewhat sharply separated laterally in a straight line from the ventral grayish silvery area. Legs slender, black with violaceous reflections, the mid tarsi with joints 2 to 5 white all around, except the base of joint 2. Wing-scales broad, the tips truncate, narrower on the forks of the fifth vein, all dark.

Male—Unknown.

Larva—Unknown.

Brazil and Surinam. Paramaribo, Surinam (H. Polak).

This species differs from *imperfectus* in lacking the whitish basal abdominal bands and in the greater extension of white on the mid tarsi.

SABETHOIDES SERRATORIA Dyar and Núñez Tovar

SABETHOIDES SERRATORIA Dyar and Núñez Tovar, Notas Sobre Nuev. Dipt. Hæm. de Venez., 7, 1927.
SABETHOIDES SERRATORIA Dyar and Núñez Tovar, Am. Journ. Hyg., viii, 92, 1928.

Female—Proboscis stout, moderate, shorter than the abdomen and slightly swollen at tip, black. Occiput black, a white spot at vertex next the eyes and white on the side below. Prothoracic lobes black, white at base and tip, non-metallic. Mesonotum blackish brown with a few white scales in front, non-metallic; pleuræ and coxæ with white scales. Abdomen black above, white below, the black cut deeply by the white posteriorly on the segments, forming little lateral bands of white. Legs black, with bronzy, blue, and white reflections, the mid tarsi white on apical half of second, third and fourth joints on the outer side. Wing-scales trigonate, some in the cell broadly ligulate.

Male—Unknown.

Larva—Unknown.

Venezuela (Villegas), Argentina (Misiones).

The type specimen was bred from water in a bamboo joint by Dr. M. Núñez Tovar. Mr. R. C. Shannon caught an exactly similar specimen at Iguazu, Argentina.

SABETHOIDES MOERBISTA (Dyar and Knab)

SABETHINUS MOERBISTA Dyar and Knab, Ins. Ins. Mens., vii, 2, 1919.
Sabethinus moerbista Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 4, 1921.
Sabethes moerbista Dyar, Ins. Ins. Mens., xii, 100, 1924.
Sabethoides moerbista Bonne and Bonne-Wepster, Mosq. of Surinam Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 39, 1925.

Female—Proboscis moderate, uniform, black. Occiput with dull brown-black scales; a white edge to the eyes on lower part, and a small white spot at vertex. Prothoracic lobes black-scaled above, white on the lower half. Mesonotum with dull brown-black scales, the anterior angles, pleuræ, and coxæ with white scales, which are not silvery. Clypeus nude; post-notum nude, with posterior setæ. Abdomen compressed laterally, the ventral scales forming a ridge; dull brown-black dorsally, white ventrally, not silvery, the colors separated on the sides in an irregular line, the white cutting into the black roundedly on the centers of the segments. Legs dark with bronzy reflection, no white marks. Wing-scales broad, truncate at tips, broadly ligulate on the forks of fifth vein, all dark.

Male—Unknown.

Larva—Unknown.

British Guiana.

This species resembles a *Dendromyia* in coloration, being without the metallic tints normal to the genus. It has, however, the laterally compressed abdomen and ventral white scale-ridge of the preceding species. Only the single female is known.

SABETHOIDES PURPUREUS Theobald

SABETHOIDES PURPUREUS Theobald, Mon. Culic., iv, 617, 1907.
Sabethoides purpureus Theobald, Mon. Culic., v, 585, 1910.
Sabethinus purpureus Dyar, Ins. Ins. Mens., vii, 119, 1919.
Sabethinus purpureus Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 4, 1921.

Sabethoides purpureus Peryassú, A Folha Med., iv, 87, 1923.
Sabethes purpureus Dyar, Ins. Ins. Mens., xii, 100, 1924.
Sabethoides purpureus Bonne and Bonne-Wepster, Mosq. of Surinam, Roy. Col. Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 39, 1925.

Female—Proboscis rather short and stout, black with blue reflection. Occiput blue, prothoracic lobes metallic violet. Mesonotum with flat apple-green scales, dusky in some lights; pleura and coxa with silvery scales. Abdomen metallic purple, with coppery red dorsal patches, silvery white ventrally, a little yellow tinted, the white angularly incising the black deeply, centrally on the segments. Legs black with bronzy and blue reflections, the femora pale beneath. Postnotum nude, with four posterior setæ. Wing-scales broad with truncate tips, all dark.

Male—Unknown.

Larva—Unknown.

Brazil. A single captured specimen is before me from Rio de Janeiro, Brazil, February 7, 1925 (F. M. Root).

SABETHOIDES MELANONYMPHE (Dyar)

Sabethinus albiprivatus Theobald (not Theobald), Mon. Culic., iv, 620, 1907.
Sabethinus albiprivatus Peryassú, Os. Culic. do Braz., 318, 1908.
Sabethinus albiprivatus Theobald, Mon. Culic., v, 586, 1910.
Sabethinus albiprivatus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 254, 1911.
Sabethinus albiprivatus Dyar, Ins. Ins. Mens., vii, 119, 1919.
Sabethinus albiprivatus Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 4, 1921.
Sabethinus albiprivatus Peryassú, A Folha Medica, iv, 87, 1923.
Sabethes melanonymphe Dyar, Ins. Ins. Mens., xii, 100, 1924.
Sabethoides albiprivatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 41, 1925.

Female—Proboscis stout, deep brown with violet reflections. Mesonotum with large flat bright blue scales; pleuræ and coxæ with silvery scales. Abdomen bright metallic violet, with large basal silvery lateral spots and similarly colored venter, showing pale golden reflections in some lights. Legs deep brown with metallic violet reflection. Wing-scales broad, truncate at tips, narrower on the forks of the fifth vein, all dark.

Male—Similar to the female in coloration. The hypopygium has been referred to by Theobald and by Bonne-Wepster and Bonne as having four spines on the ninth tergites; but no description of the clasper or other parts has appeared. The single slide is probably badly prepared.

Larva—Unknown.

Brazil.

No specimens of this species are before me, but from the description it must fall in the group with *aurescens* and *undosus*, in which the abdomen is not strongly laterally compressed, the colors separated in the sides in an undulating but sharp line. From these two species it apparently differs in the blue mesonotum.

SABETHOIDES UNDOSUS Coquillett

Sabethinus intermedius Bourroul, Mosq. do Brazil, 48, 1904 (nomen nudum).
Sabethinus intermedius Blanchard, Les Moust., 634, 1905 (nomen nudum).
Sabethoides undosus Coquillett, Proc. Ent. Soc. Wash., vii, 186, 1906.
Sabethinus intermedius Theobald, Mon. Culic., iv, 619, 1907.

Sabethinus intermedius Theobald, Mon. Culic., v, 586, 1910.
Sabethoides undosus and *intermedius* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 250 and 253, 1911.
Sabethinus undosus and *intermedius* Howard, Dyar and Knab, Mosq. No. and Cent. Am. and W. I., iii, 32 and 33, 1915.
Sabethinus undosus and *intermedius* Dyar, Ins. Ins. Mens., vii, 119, 1919.
Sabethinus undosus and *intermedius* Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 4, 1921.
Sabethinus undosus and *intermedius* Dyar, Ins. Ins. Mens., x, 61, 1922.
Sabethinus undosus and *intermedius* Dyar, Ins. Ins. Mens., xi, 169, 1923.
Sabethinus intermedius Peryassú, A Folha Medica, iv, 87, 1923.
Sabethinus undosus Dyar and Shannon, Ins. Ins. Mens., xii, 87, 1924.
Sabethes intermedius Dyar, Ins. Ins. Mens., xii, 100, 1924.
Sabethoides undosus and *intermedius* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 39, 1925.
Sabethoides undosus Dyar, Ins. Ins. Mens., xiii, 107, 1925.

Female—Proboscis moderate, stout, slightly swollen at tip, black. Occiput blue-violet; prothoracic lobes violet, silvery below. Mesonotum with flat metallic green scales; pleuræ and coxæ with silvery white scales. Postnotum nude, with tuft of setæ posteriorly. Abdomen but little compressed, the venter contracted, but generally not forming a ridge, dark violet dorsally, laterally and ventrally silvery white, the white roundedly incising the dark color centrally on the segments. Legs dark with violaceous reflection, the fifth hind tarsal more or less distinctly whitish on the under side. Wing-scales broad, obliquely truncate at tips, all dark.

Male—Coloration as in the female. Hypopygium (Plate III, Fig. 8): Side-piece stout, narrowly conical at tip, strongly chitinized except within; two setæ close together from conspicuous tubercles near the middle. Clasper with a rather short, stout stem, widening outwardly and bearing three lobes, one slender and recurved, a small one opposite it, one broadly disk-like, with a row of striæ and a border of fimbriæ, the other erect, contracted, bearing fimbriæ at tip. Tenth sternites long, curved, with dentate tips. Ninth sternites wide, subquadrate, joined by a slender bridge, each part with five stout setæ, which have pointed tips, not distinctly widened before them. Mesosome with two pairs of slender processes.

Larva (Plate III, Fig. 8)—Head moderate, rounded in front, the antennæ slender, not exceeding the mouth-brushes. Head-hairs both single, anteantennal tuft in two. Maxillæ with long terminal horn and four short teeth on the inner side. Lateral abdominal hairs double on segments 4 and 5, single on the rest. Lateral comb of the eighth segment of seven spines in a line and rather widely spaced. Air-tube flared at the base, four and a half times the basal width, spicular, weakly haired—a stout seta about the middle and several weak ones posteriorly, not forming a posterior fringe. Dorsally on the posterior part of the seventh segment are a pair of simple hooks. Anal segment with the plate reaching the middle of the sides; two tufts of three long hairs each on the dorsal angle, a tuft of two long hairs on the lateral angle; subventral tuft of three long hairs on each side. Anal gills longer than the segment, narrowed outwardly.

Nicaragua, Panama, Venezuela, Trinidad, and Brazil. Maracay, Aragua, Venezuela, September 13, 1926 (M. Núñez Tovar).

The larvæ are addicted to the water in broken bamboo joints, and the species is not found where this plant is absent. Observations are contradictory; Busck states that the larvæ are predacious, but Dyar found them

to be vegetable feeders. The occurrence of the larvæ in "large numbers" in bamboo, a restricted habitat, is evidence against an exclusively predacious habit. The adults are diurnal.

SABETHOIDES AURESCENS (Theobald)

SABETHINUS AURESCENS Theobald, Mon. Culic., iv, 622, 1907.
SABETHES IDENTICUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 207, 1907.
Sabethinus aurescens Peryassú, Os Culic. do Braz., 315, 1908.
Sabethinus aurescens Theobald, Mon. Culic., v, 586, 1910.
Sabethinus aurescens Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 253, 1911.
Sabethinus identicus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 35, 1915.
Sabethinus identicus Dyar, Ins. Ins. Mens., vii, 119, 1919.
Sabethinus aurescens Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 5, 1921.
Sabethinus aurescens Dyar, Ins. Ins. Mens., x, 61, figs. 1, 2, 1922.
Sabethinus aurescens Dyar, Ins. Ins. Mens., xi, 169, 1923.
Sabethinus aurescens Peryassú, A Folha Medica, iv, 87, 1923.
Sabethes aurescens Dyar, Ins. Ins. Mens., xii, 100, 1924.
Sabethoides aurescens Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 40, 1925.
Sabethoides aurescens Dyar, Ins. Ins. Mens., xiii, 108, 1925.

Female—Proboscis moderate, stout, black. Occiput blue-violet, prothoracic lobes violet, silvery below. Mesonotum with flat metallic green scales; pleuræ and coxæ with silvery white scales. Postnotum nude with a tuft of setæ posteriorly. Abdomen but little compressed, the venter contracted, but generally not forming a ridge, bright metallic violet and blue dorsally, laterally and ventrally silvery white, the white roundedly incising the dark color centrally on the segments. Legs dark with violaceous reflection. Wing-scales broad, obliquely truncate at tips, all dark.

Male—Coloration as in the female. Hypopygium (Plate III, Fig. 9): Side-piece stout, narrowly conical at tip, strongly chitinized except within; two setæ close together from conspicuous tubercles near the middle. Clasper with long rather slender stem, the tip widened and bearing two branches, one lateral, thumb-shaped and articulated, the other transverse across the tip, widened and hirsute at one end, pointed at the other with an eye-like tubercle. Tenth sternites long, curved, with dentate tips; ninth tergites rounded capitate, joined by a bridge, each part bearing six closely placed stout setæ with pointed tips. Mesosome with two pairs of slender processes.

Larva—(Plate III, Fig. 9)—Head moderate, rounded in front, the antennæ small. Head-hairs both single, anteantennal tuft in five. Maxillæ with terminal horn and five inner teeth, the penultimate one distinctly larger than the others. Lateral comb of the eighth segment of about ten simple spines in a nearly straight row. Air-tube regularly tapered, about four times the basal width, spicular, weakly haired, a seta showing about the middle and several weak ones posteriorly, not forming a posterior fringe. Dorsally on the posterior part of the second segment are a pair of toothed hooks. Anal segment with the plate reaching the middle of the sides; a tuft of three and two hairs each on the dorsal angle, a single hair on the lateral angle; subventral hairs one on each side. Anal gills longer than the segment, tapering outwardly.

Panama, Venezuela, and Brazil. Cysneiros, Minas, Brazil, December 27,

1906 (Instituto de Manguinhos); Ocumare de la Costa, Venezuela, April 12, 1927 (M. Núñez Tovar).

The larvæ are addicted to the water in broken bamboo joints, occurring with *undosus*, but much rarer than it. Where there is no bamboo the species is not found.

Genus LIMATUS Theobald

LIMATUS Theobald, Mon. Culic., ii, 349, 1901.
SIMONDELLA Laveran, C. R. Heb. Soc. Biol., liv, 1160, 1902.
LEMMAMYIA Dyar, Ins. Ins. Mens., vii, 140, 1919.
Limatus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 479, 1924.
Limatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 45, 1925.

A small genus, comprising but three species, a little more specialized than *Wyeomyia* and *Dendromyia* in somewhat further loss of setæ and development of brilliant colors. The larvæ are frequent in small collections of water in tree-holes, nut-husks, and coconut-shells, but the adults are seldom observed. They are diurnal in habit and are said to bite man.

Prealar setæ present, no spiracular setæ. Prothoracic lobes well separated, the hind tarsi with but one claw.

TABLE OF SPECIES

ADULT

1. Colors of the abdomen incised on the sides; proboscis of male bent and curved . . . . . { *durhamii* Theobald / *hoffmani* Root
   Colors of abdomen separated in a straight line; proboscis of male normal; *asulleptus* Theobald

MALE HYPOPYGIUM

1. Side-piece short, unarmed, clasper with two divergent arms 2
   Side-piece well developed; a spine at tip, a large tuft of curled hair from base; clasper with capitate tip and expansion . . . . . *asulleptus* Theobald
2. Side-piece without curled hair . . . . . *durhamii* Theobald
   Side-piece with a tuft of curled hair . . . . . *hoffmani* Root

LARVA

1. Subventral anal tufts in 3 or 4, long . . . . . { *hoffmani* Root / *durhamii* Theobald
   Subventral tufts multiple, short . . . . . *asulleptus* Theobald

LIMATUS DURHAMII Theobald

LIMATUS DURHAMII Theobald, Mon. Culic. II, 350, 1901.
SIMONDELLA CURVIROSTRIS Laveran, C. R. Heb. Soc. Biol., liv, 1160, 1902.
DENDROMYIA PARAENSIS Theobald, Mon. Culic., iii, 316, 1903.
LIMATUS CACOPHRADES Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 266, 1909.
Wyeomyia (Limatus) durhami and *paraensis*, Dyar, Ins. Ins. Mens., xi, 171, 1923.
Limatus durhami and *Wyeomyia paraensis* Peryassú, A Folha Medica, iv, 87, 1923.
Limatus (Limatus) durhami and *paraensis* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, p. 47 and 49, 1925.
Limatus (Limatus) durhami and *paraensis* Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 479, 1924.
Limatus durhamii Dyar, Ins. Ins. Mens. xiii, 109, 1925.

Female—Proboscis long and rather slender, swollen at tip. Clypeus nude. Occiput with black scales with green metallic luster. A pale prominence between the eyes below vertex. Prothoracic lobes golden yellow. Mesonotum marked with pale areas laterally in the membrane, the vestiture of dark purple and blackish scales varied with large patches of golden ones; pleuræ and coxæ with bright golden scales. Abdomen purplish black dorsally, pale golden ventrally, the colors incised on the sides, the pale color cutting the dark one on the segments anteriorly in wedge-shaped marks. Legs black with violaceous golden reflections; hind tarsi with the last joint whitish in certain lights. Wings with the scales moderately broad, with truncate tips, long and narrow ones projecting into the cell on both sides, and mixed with narrow ones on the forks of the fifth vein; all dark.

Male—The proboscis is modified, bent in the middle, the apical part curved, bronzy at base, the bend and apex black, marked with white between. The hind legs are silvery beneath throughout; mid legs with fourth and fifth joints and all but base of third tarsal joints silvery beneath. Hypopygium (Plate III, Fig. 10): Side-piece short, stoutly conical, enlarged and divided at tip for the insertion of clasper; three long setæ in a row near middle. Clasper with long but rather stout stem two-branched at apex, the inner branch articulated, somewhat irregular, each with a row of setæ. Tenth sternites short, stout, a little curved, and with three sharp teeth at tip. Ninth tergites broad at lateral inception, becoming narrow and directed posteriorly in V-shape, each with four spines with pointed tips and widened outwardly, the two sets continguous, forming a row of eight.

Larva (Plate III, Fig. 10)—Head rounded, about as long as wide; antennæ small, cylindrical, smooth, a single hair at outer fourth. Head-hairs all single. Lateral comb of the eighth segment of six or seven well-separated scales in a line. Air-tube small, basal half thick, tapered outwardly; a row of three double hair-tufts on dorsal, seven on ventral aspect. Anal segment about as long as wide, the plate reaching well down the sides; dorsal tuft of six long hairs on each side; lateral tuft in two, long; subventral tufts of three long hairs on each side. Anal gills twice as long as the segment with rounded tips.

Costa Rica, Nicaragua, Salvador, Panama, Ecuador, Venezuela, the Guianas, Trinidad, and Brazil, Argentina (Misiones & Jujuy)

The larvæ are frequent in small collections of water in decaying vegetable tissues, nut-husks, large fallen leaves, and tree-holes. The adults fly by day in the forest and occasionally will bite man.

LIMATUS HOFFMANI Root

LIMATUS HOFFMANI Root, Amer. Journ. Hyg., vii, 465, 1927.

Female—Unknown.

Male—Coloration as far as visible in the unique specimen as in *durhamii*. Proboscis straight to the middle, the bent part also straight, arising from a notch; brown, marked with black at the notch and tip with white scales between on the underside. Wing-scales narrow, all dark. Hypopygium (Plate IV, Fig. 12): Side-piece short, conical, nearly devoid of vestiture but with three setæ centrally and a large tuft of long curled hair at the same level. Clasper broadly inserted, stout, with an articulate arm at tip, both the arm and head of clasper with fine setæ. Tenth sternites large, blackish,

with small teeth at tip. Ninth tergites sessile on a narrow, arcuate bridge, each with about ten long, sharp-tipped spines, the two rows approximate.

Larva (Plate IV, Fig. 12)—Head rounded, antennæ small, smooth; head-hairs single, lateral comb of the eighth segment of six spines in a straight row. Air-tube short, conical outwardly; three tufts on basal half of dorsal aspect and four on the ventral aspect. Anal segment with the plate reaching the middle of the side; dorsal tuft of four hairs (2+2) on each side; lateral hair double, long; subventral tuft in three on each side, long. Anal gills twice as long as the segment, rounded.

Haiti (Rivière Froide).

This species long escaped observation. It should probably be found throughout the Greater Antilles, although it may be confined to the island of Haiti.

LIMATUS ASULLEPTUS (Theobald)

DENDROMYIA ASULLEPTA Theobald, Mon. Culic., iii, 315, 1903.
LIMATUS METHYSTICUS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss. lii, 266, 1909.
LEMMAMYIA PSEUDOMETHYSTICUS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 166, 1920.
Wyeomyia (Lemmamyia) asullepta and *pseudomethysticus* Dyar, Ins. Ins. Mens., xi, 171 and 172, 1923.
Lemmamyia asullepta Dyar and Shannon, Ins. Ins. Mens., xii, 90, 1924.
Limatus (Lemmamyia) asullepta and *pseudomethysticus,* Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 479, 1924.
Limatus (Lemmamyia) asullepta and *pseudomethysticus* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 50 and 53, 1925.
Limatus asulleptus Dyar, Ins. Ins. Mens., xiii, 110, 1925.

Female—Proboscis moderate, slightly swollen at the tip, black with bronzy reflections. Clypeus nude. Occiput with flat black scales, with green reflection, a small golden spot at vertex, laterally white. Prothoracic lobes with golden scales. Mesonotum with purplish brown scales with coppery reflection, a wedge-shaped patch of golden ones anteriorly; pleuræ and coxæ with silvery scales in patches, the upper margin of pleuræ golden-scaled. Abdomen black dorsally, with violaceous reflection, silvery white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection; last hind tarsal joint white below; mid tarsi white beneath on last three joints. Wings with the scales moderately broad, with truncate tips, long narrow ones projecting into the cell, mixed with narrow ones on the forks of fifth vein; all dark.

Male—Hind legs white below to second tarsal joint, fifth joint white beneath; mid tarsi with the last three joints white all around. Hypopygium (Plate IV, Fig. 11): Side-piece three times as long as wide, curved; at its base a rounded projection half as long as itself bearing a large tuft of long curled hairs; apex notched for insertion of clasper, one angle of the insertion spine-shaped. Clasper with moderate rather slender stem, the apex expanded, shortly trilobed, the lobes irregular and with rows of setæ. Tenth sternites rather short, thick, with fine spines at tip. Ninth tergites wide at the sides, narrowing and forming a U-shaped projection posteriorly; six or seven flat spatulate spines on each side, the pairs approximated, forming a single row of 12 or 13. Mesososome small, indefinite, hood-shaped, with two pairs of finger-shaped processes.

Larva (Plate IV, Fig. 11)—Head rounded, about as long as wide; antennæ small, cylindrical, smooth. Lateral comb of the eighth segment of six large thorn-shaped scales, well separated. Air-tube small, basal half thick, tapered outwardly. A double row of three hair-tufts in twos or threes on dorsal, six on ventral side, the latter single, double, or in threes. Anal segment with the plate reaching well down the sides, dorsal tuft two in threes, long; lateral in two, long; subventral tufts multiple, about ten, moderate in length, much shorter than the others. Anal gills twice as long as the segment, full, with rounded tips.

Costa Rica, Panama, Surinam; not reported from Brazil.

The larvæ live in water in husks and tree-holes as in the case of *durhamii*, than which this species is much rarer. The habits are similar to those of that species.

Genus WYEOMYIA Theobald

Wyeomyia Theobald, Mon. Culic., ii, 267, 1901.
Phoniomyia Theobald, Mon. Culic., iii, 311, 1903.
Pentemyia Dyar, Ins. Ins. Mens., vii, 122, 1919.
Diphalangarpe Dyar, Ins. Ins. Mens., vii, 126, 1919.
Dodecamyia Dyar, Ins. Ins. Mens., vii, 138, 1919.
Dyarina Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 6, 1921.
Wyeomyia Dyar, Proc. U. S. Nat. Mus., lxii, 4, 1922.
Phyllozomyia Dyar, Ins. Ins. Mens., xii, 122, 1924.
Wyeomyia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 479, 1924.
Wyeomyia Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 54, 1925.
Phomiomyia Dyar, Ins. Ins. Mens., xiii, 226, 1925.

A genus of small sabethid mosquitoes of rather dull colors. The larvæ of all but two species breed in the water that collects in the leaf-bases of terrestrial and arboreal Bromeliaceæ. They are day-flying and probably also crepuscular. Some of the species have been observed to bite warm-blooded animals, but their attacks are rare and they are troublesome only under special circumstances. They are found only in shaded forests where their host plants grow. One species, in temperate regions, is addicted to the pitcher-plant, of another botanical family, but holding water in its specially shaped leaves. The group is specialized from the *Sabethes-Dendromyia* stem by the narrow wing-scales and restricted larval habits.

No pronotal setæ; prealar setæ present; spiracular setæ present; lower sternopleural setæ all distinctly below the upper margin of the lateral metasternal sclerite; wing-scales, especially the outstanding ones at the bases of the fork-cells, narrow. Prothoracic lobes well separated; hind tarsi with two claws.

Table of Species

ADULT

1. Proboscis moderate, rather stout, shorter than the abdomen 2
   Proboscis long and slender, as long as the abdomen or longer 11
2. Prothoracic lobes silvery-scaled 3
   Prothoracic lobes not silvery-scaled 4
3. Mid and hind tarsi white-marked . . . . . *vanduzeei* Dyar and Knab
   Hind tarsi only white-marked . . . . . *bahama* Dyar and Knab
4. Mid and hind tarsi white-marked 5
   Mid tarsi only white-marked 7

Hind tarsi only white marked . . . . . { *scotinomus* Dyar and Knab / *simmsi* Dyar and Knab
Tarsi without white 8

5. White on hind tarsi continuous . . . . . *caracula* Dyar and Núñez Tovar
White on hind tarsi 6

6. From Central America and Panama . . . . . *guatemala* Dyar and Knab
From Colombia (and Ecuador?) . . . . . *camptocomma* Dyar
From Venezuela (and British Guiana?) . . . { *guadians* Dyar and Núñez Tovar / *gausapata* Dyar and Núñez Tovar
From the West Indies and Florida . . . . . *mitchellii* Theobald

7. From temperate North America . . . . . *smithii* Coquillett
From Central America, Panama, and Venezuela . . *celænocephala* Dyar and Knab
From Venezuela, the Guianas, Trinidad, and Lesser Antilles, *quasiluteoventralis* Theobald
From Brazil and Surinam . . . . . *oblita* Theobald

8. Integument yellow; proboscis long . . . . . *flavifacies* Edwards
Integument dark; proboscis moderate 9

9. Palpi white-tipped; wing-scales ligulate . . . . . *bromeliarum* Dyar and Knab
Palpi not white-tipped; wing-scales narrow 10

10. From Mexico . . . . . *abebela* Dyar and Knab
From Panama . . . . . *melanopus* Dyar
From the Lesser Antilles . . . . . *pertinans* Williston

11. Abdominal colors separated in a straight line 12
Abdominal colors incised laterally on the segments 14

12. Wing-scales narrowly linear 13
Wing-scales broadly linear to ovate . . . . . *aphobema* Dyar

13. Mid tarsi white-marked . . . . . *longirostris* Theobald
Tarsi entirely dark . . . . . *bicornis* Root

14. Mid tarsi with the fifth joint dark 15
Mid tarsi with the fifth joint white, as preceding joints 17

15. Mid tarsi dark in female (white-marked in male except the last joint), *tripartita* Bonne-Wepster and Bonne
Mid tarsi white-marked in the female as in the male 16

16. From Trinidad . . . . . *trinidadensis* Theobald
From Brazil . . . . . *pallidoventer* Theobald

17. White on hind legs extensive . . . . . { *splendida* Bonne-Wepster and Bonne / *pilicauda* Root
White on hind legs small . . . . . { *quasilongirostris* Theobald / *incaudata* Root

MALE HYPOPYGIUM

1. Clasper with capitate tip, a short arm on either side, in a few species absorbed into the head 2
Clasper with three arms, which are separated and without capitate tip 12
Clasper with cup-shaped expanded tip; two horns on the margin *(Nunezia*)*, *bicornis* Root
Clasper simple, without branches (*Dodecamyia* Dyar) 14

2. Stem of clasper short and stout (*Phyllozomyia* Dyar) 3
Stem of clasper long and slender *(Wyeomyia* Theobald) 5

3. Side-arms of clasper as long as the capitate head . . . . *vanduzeei* Dyar and Knab
These arms shorter than the head 4

4. Short outer arm connected by a thin membrane . . *celænocephala* Dyar and Knab
Outer arm short, free . . . . . *smithii* Coquillett

* *Nunezia* Dyar, new subgenus, named for Dr. M. Núñez Tovar, my collaborator in Venezuela.

5. Tip of clasper with two spines, an angular wing on each side, one with a slender curved arm . . . . . *longirostris* Theobald
Tip of clasper triangularly distorted, one angle drawn backward and ending in a flat plate . . . . . *abebela* Dyar and Knab
Tip of clasper umbrella-shaped with fimbriæ on one side and a slender angled arm reflexed along the stem . . . . . *caracula* Dyar and Núñez Tovar
Tip of clasper triangularly expanded, a short arm on either side; a fourth central pilose arm 6
Tip of clasper bud-shaped, with or without short lateral arms 10

6. Main disk of clasper squarely ended 7
Main disk of clasper triangular, wide at base 8
One angle of disk produced, setigerous 9

7. Longer side-arm stout, roundedly expanded . . . . . *camptocomma* Dyar
This arm slender and narrow . . . . . *scotinomus* Dyar and Knab

8. Central cone broad; outer arm normal . . . . . *gaudians* Dyar and Núñez Tovar
Central cone long; outer arm with digitate radii . *gausapata* Dyar and Núñez Tovar

9. Angle of clasper produced and constricted . . . . . *quasiluteoventralis* Theobald
Angle of clasper simply produced . . . . . { *mitchellii* Theobald; *pertinans* Williston; *oblita* Theobald }

10. Clasper with small side-arms . . . . . *guatemala* Dyar and Knab
Clasper without side-arm 11

11. Clasper with distinct core-arm . . . . . *simmsi* Dyar and Knab
Clasper without core-arm . . . . . *melanopus* Dyar

12. The three arms approximate, erect, one at right angles *(Pentemyia)*, *bromeliarum* Dyar and Knab
The three arms long and widely separated *(Dyarina)* 13

13. Basal arm of clasper divided . . . . . *pallidoventer* Theobald
Basal arm of clasper single . . . . . { *trinidadensis* Theobald; *tripartita* Bonne-Wepster and Bonne }

14. Side-piece with apical tuft of strong spines, *splendida* Bonne-Wepster and Bonne
Side-piece with median tuft on a lobe . . . . . *aphobema* Dyar
Side-piece without a tuft 15

15. Ninth tergites very broad, with six separated setæ . . . *quasilongirostris* Theobald
Ninth tergites very narrow, finger-shaped 16

16. Venter of eighth segment with a patch of short setæ . . . . . *incaudata* Root
Venter of eighth segment with very long, coarse, curved setæ . . . *pilicauda* Root

The following are unknown in the male: *Bahama* and *flavifacies*.

LARVA

1. Eighth segment with a chitinous plate . . . . . *bromeliarum* Dyar and Knab
Eighth segment without chitinous plate 2

2. Lateral comb-scales in a patch; air-tube with median basal false pecten . . . 3
Lateral comb-scales in a single row 7

3. Air-tube moderate, slightly inflated . . . . . *aphobema* Dyar
Air-tube very long, tapered outwardly 4

4. Comb of many scales, posterior ones long 5
Comb of moderate number, all alike 6

5. False pecten on basal half of tube; basal ventral tuft double; head-hairs in coarse tufts . . . . . *splendida* Bonne-Wepster and Bonne
False pecten running whole length of tube; basal ventral tuft in five; head-hairs inconspicuous . . . . . *bicornis* Root

6. Tube shorter; about seven ventral hairs; lateral anal hair double, { *trinidadensis* Theobald / *incaudata* Root
   Tube longer; about twelve ventral hairs . . . . . *pilicauda* Root
7. Lateral comb of the eighth segment of seven spines; anal gills only two, *smithii* Coquillett
   Lateral comb-scales more numerous; anal gills four 8
8. Hairs on the tube all single basally . . . . . *mitchellii* Theobald
   Hairs mostly single basally; single apically 9
   Hairs double and long dorsally, single ventrally . . . *vanduzeei* Dyar and Knab
   Hairs on tube all neatly double . . . . . *simmsi* Dyar and Knab
9. Air-tube long, conical, basal dorsal hairs doubled . . *celænocephala* Dyar and Knab
   Air-tube various; basal dorsal hairs not doubled 10
10. Air-tube moderate, slightly swollen centrally 11
    Air-tube slender, tapered . . . . . *abebela* Dyar and Knab
11. Anal hairs, upper two, lower one 12
    Anal hairs both double . . . . . *guatemala* Dyar and Knab
12. Upper head-hair a tuft, lower in three . . . . . *quasiluteoventris* Theobald
    Upper head-hairs 2-4, lower 1-2 13
13. Hair behind the comb of eighth segment double . . . *scotinomus* Dyar and Knab
    This hair single . . . . . *camptocomma* Dyar

The following species are unknown or insufficiently so in the larva: *Bahama, longirostris, pertinans, oblita, gausapata, gaudians, caracula, flavifacies, melanopus, quasilongirostris, pallidoventer,* and *tripartita.*

Subgenus PHYLLOZOMYIA Dyar

WYEOMYIA (PHYLLOZOMYIA) SMITHII (Coquillett)

AËDES SMITHII Coquillett, Can. Ent., xxxiii, 260, 1901.
Wyeomyia smithii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 94, 1915.
Wyeomyia (Dendromyia) smithii Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 72, 1921.
Wyeomyia smithii Mathison and Shannon, Ann. Ent. Soc. Amer., xv, 163, 1922.
Wyeomyia (Dendromyia) smithii Dyar, Proc. U. S. Nat. Mus., lxii, 6, 1922.
Phyllozomyia smithii Dyar, Ins. Ins. Mens., xii, 112, 1924.
Wyeomyia (Phyllozomyia) smithii Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.

Female—Proboscis moderate, swollen apically, black with bronzy reflection. Occiput with brown scales with metallic reflection, a small silvery patch at vertex; a white patch below, running up a short distance along the eye-margin. Prothoracic lobes with violet-blue scales with metallic reflection. Mesonotum with dark brown scales. Scales below anterior angles, pleuræ, and coxæ silvery white. Abdomen dorsally black with bronzy and blue reflection; venter silvery white, the colors separated on the sides in a straight line. Outstanding scales of the veins narrow, ligulate, broader and denser on forks of second and fourth veins and outwardly on third vein, all dark. Legs black, with bronzy and blue reflections; mid tarsi with the apical portion of the second joint and all of the third and fourth white on the outer side.

Male—Hypopygium (Plate IV, Fig. 13)—Side-piece short, wide at base, cylindrical outwardly, grooved down the inside for the reception of the clasper. Three setæ close together in a row near middle. Clasper with a

short and rather thick irregular stem, the tip conical and spinose at summit; two arms, the outer very short, the inner recurved toward apex and finely pilose. Tenth sternites wide and membranous, but with a row of fine teeth at tip. Ninth sternites two small well-separated lobes on a band of chitin, each with four spinose setæ. Mesosome a narrow hood connecting two pairs of appendages, about as large as the tenth sternites and somewhat swollen.

Larva (Plate IV, Fig. 13)—Head rounded, as wide as long. Antennæ small, cylindrical, with a small hair outwardly. Head-hairs all single. Lateral comb of the eighth segment of seven spines in a straight row. Air-tube about four times as long as wide, slightly conically tapered, covered with a number of single hairs on all aspects. Anal segment with the plate reaching well down the sides; dorsal hairs in two tufts of two on each side; lateral hairs in three; subventral tuft three long hairs on each side. Anal gills only two, thick, somewhat longer than the segment, pointed.

Ontario, New York, Massachusetts, Illinois, Wisconsin, New Jersey, Maryland, North Carolina, South Carolina, Alabama; eastern North America in bogs where the "pitcher plant," *Sarracenia purpurea,* grows. The larvæ live in the water held in the leaves of this plant, which is rich in decomposing insect remains, and may be found at all seasons of the year, even in winter, the larvæ being frozen up in the ice-cores in the leaves. The adults are apparently nocturnal, and not known to bite man.

WYEOMYIA (PHYLLOZOMYIA) VANDUZEEI Dyar and Knab

WYEOMYIA VANDUZEEI Dyar and Knab, Proc. Biol. Soc. Wash., xix, 138, 1906.
WYEOMYIA FRATERCULA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 139, 1906.
WYEOMYIA SORORCULA Dyar and Knab, Proc. Biol. Soc.Wash., xix, 139, 1906.
WYEOMYIA ARGYRURA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 70, 1908.
WYEOMYIA CONCHITA Dyar and Knab, Smith. Misc. Colls., Quart. Iss., lii, 264, 1909.
Wyeomyia conchita, argyrura, vanduzeei, fratercula, and *sororcula* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 63, 64, 65, 68, and 69, 1915.
Dendromyia vanduzeei, argyrura, fratercula, and *sororcula,* Dyar, Ins. Ins. Mens., vii, 124 and 126, 1919.
Wyeomyia (Dendromyia) vanduzeei Dyar, Proc. U. S. Nat. Mus., lxii, p. 1922.
Wyeomyia (Phyllozomyia) vanduzeei Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia vanduzeei Dyar, Ins. Ins. Mens., xii, 104, 1924.
Dendromyia vanduzeei, argyrura, fratercula, and *sororcula,* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 104, 105 and 106, 1925.

Female—Proboscis moderate, swollen, bronzy black. Occiput with flat brown scales with metallic reflection; a silver-white spot at vertex; a silvery white patch below at sides running up along margin of eye. Prothoracic lobes with silvery scales. Scales of mesonotum brown with submetallic reflection; pleuræ and coxæ with silvery white scales. Abdomen dorsally black with slight metallic reflection, the last segment silvery-scaled along the posterior margin. Venter yellowish white-scaled, the colors separated at the sides in a straight line. Legs black, with bronzy reflection; mid tarsi with apical part of second, the third and fourth joints white beneath; hind tarsi marked with white at base of each joint beneath. Wings with the outstanding scales long, ligulate, denser at apices of second, third and fourth veins; all dark.

Male—White marking of mid tarsi somewhat more extensive than in

the female. Hypopygium (Plate V, Fig. 14): Side-piece short, conical, chitinized strongly, except for a groove on inner side for reception of clasper. Three setæ in a row below middle. Clasper longer than side-piece, with a rather short irregular stem; apex widened, trilobed, the lobes of about equal length, center conical and hairy, outer slender, inner broad and setose. Tenth sternites long, membranous, wide at base, the tips solid and dentate. Ninth tergites forming a long, narrow, arched bridge, on which are two groups of three stout sharp-tipped setæ, remote from each other. Mesosome small, hood-like, membranous.

Larva (Plate V, Fig. 14)—Head round, as wide as long; antennæ small, cylindrical, a single hair outwardly. Head-hairs all single. Comb of the eighth segment a single row of many spines, becoming smaller ventrally. Air-tube six times as long as wide, uniform, conical at tip; a row of six small double tufts dorsally, a larger double tuft below, and two very small ones toward the tip. Anal segment with the dorsal plate reaching well down the sides. Dorsal tufts of two and three on each side; lateral tuft of two; subventral tuft small, of three on each side. Anal gills four, much longer than the segment, wide and with rounded tips.

Southern Florida, Cuba, Santo Domingo, Martinique.

The larvæ live in the water that collects in the bases of the leaves of the large bromeliaceous plants that grow on the horizontal branches of trees in the jungle. Whenever these contain water, larvæ may be found; but at certain seasons the plants are dry. The adults occasionally bite, but are not found away from their host plants.

WYEOMYIA (PHYLLOZOMYIA) BAHAMA Dyar and Knab

WYEOMYIA BAHAMA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 138, 1906.

WYEOMYIA MINOR Dyar and Knab, Proc. Biol. Soc. Wash., xix, 138, 1906.

Wyeomyia minor and *bahama* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 62, 1915.

Dendromyia minor and *bahama* Dyar, Ins. Ins. Mens., vii, 124, 1919.

Wyeomyia bahama Dyar, Ins. Ins. Mens., xii, 104, 1924.

Wyeomyia (Phyllozomyia) bahama Dyar and Shannon, Jour. Wash. Acad. Sci., xiv, 480, 1924.

Wyeomyia (Dendromyia) minor and *bahama* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 104 and 105, 1925.

Female—Proboscis moderate, enlarged apically, black with bronzy reflection. Occiput with brown scales with slight metallic reflection; a white spot at vertex and a patch on the lower part of the side. Mesonotum with brown scales with bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally, with slight bronzy reflection, last segment silvery; venter silvery white, the colors separated on the sides in a straight line. Legs brown, with bronzy reflection, hind tarsi marked with white at the bases of all the joints beneath.

Male—Unknown.

Larva—Unknown.

Bahamas and eastern Cuba. This species differs from *vanduzeei* in having no white on the mid tarsi. Specimens have been observed to bite in the daytime.

WYEOMYIA (PHYLLOZOMYIA) CELÆNOCEPHALA Dyar and Knab

WYEOMYIA CELÆNOCEPHALA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 140, 1906.
PHONIOMYIA CHRYSOMUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 208, 1907.
PHONIOMYIA PHILOPHONE Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 209, 1907.
WYEOMYIA MEGALODORA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 69, 1908.
WYEOMYIA MATÆA Dyar and Knab, Proc. U. S. Nat. Mus. xxv, 70, 1908.
Wyeomyia chrysomus, megalodora, philophone, matœa, and *celænocephala* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 70, 77, 85, 93 and 155, 1915.
Dendromyia chrysomus Dyar, Ins. Ins. Mens., vii, 125, 1919.
Wyeomyia celænocephala Dyar, Ins. Ins. Mens., vii, 129, 1919.
Wyeomyia (Dendromyia) chrysomus Dyar, Ins. Ins. Mens., xi, 65, 1923, Pl. V, fig. 1.
Wyeomyia (Phoniomyia) chrysomus, and *Wyeomyia (———) celænocephala* Dyar, Ins. Ins. Mens., xi, 172, 1923.
Wyeomyia celænocephala Dyar, Ins. Ins. Mens., xii, 116, 1924.
Wyeomyia (Wyeomyia) celænocephala, Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Phoniomyia chrysomus Dyar and Shannon, Ins. Ins., Mens., xii, 13, 89, 1924.
Wyeomyia (Dendromyia) chrysomus and *celænocephala* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 108, 112, 1925.
Wyeomyia (Phyllozomyia) celænocephala Dyar, Ins. Ins. Mens., xiii, 112, 1925.

Female—Proboscis long and slender, about as long as the abdomen, black with blue reflection. Occiput with black scales with green and blue reflection; a violaceous patch at vertex, silvery in some lights; a white patch at the side below. Prothoracic lobes with shining blue and violaceous scales with more or less coppery reflection. Mesonotum with dark brown scales with metallic reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally with slight blue reflection, silvery white ventrally, the colors separated on the sides in a straight line. Legs black with blue reflection; mid tarsi with apex of second, third to fifth joints white-marked beneath. Wing-scales broadly linear, denser at the apices of second to fourth veins.

Male—Coloration as in the female, the mid legs more brassy below. Hypopygium (Plate V, Fig. 15)—Side-piece broad at base, narrowly cylindrical outwardly, strongly chitinized except within; two setæ from strong tubercles near the middle. Clasper with rather stout irregularly constricted stem; head trilobed, the center conical with a row of coarse spines; inner lobe slender, pilose; outer lobe angularly curved, joined to the center lobe by a thin striate membrane. Tenth sternites rather thick and long but membranous, the tip chitinized and toothed. Ninth tergites conical, connected by a slender curved bridge, each with two stout spines. Mesosome two stout cones, each bearing two spines at tip.

Larva (Plate V, Fig. 15)—Head rounded, as wide as long; antennæ small, slender, a small two-haired tuft beyond the middle. Upper head-hair in threes, lower in twos and long. Comb of the eighth segment of rather long spines in a dense row, becoming smaller ventrally. Air-tube over six times as long as wide, gently tapered, more rapidly so terminally, with evenly distributed single hairs, those nearest the base short and double or triple. Anal segment longer than wide; dorsal plate reaching well down the sides; dorsal tuft of two long hairs on each side; lateral hair single, long; subventral tuft short, about ten-haired on each side. Anal gills over twice as long as the segment, broadly ensiform.

Honduras, Guatemala, Salvador, Panama, and Venezuela. Punto Cas-

tilla, Honduras, March 1925 (W. H. W. Komp); Mariara, Carabobo, Venezuela, June 14, 1927 (M. Núñez Tovar).

The larvæ occur commonly in the large epiphytic bromelias of the region. These plants are often large and hold a considerable quantity of water. The larvæ occur also in the spiny bromelias and pineapple leaves. I have no record of the adults biting man.

In Venezuela this species occurs with the very similar *Wyeomyia (Wyeomyia) quasiluteoventralis*. Females are difficult to distinguish; but the present species is generally smaller and with the white parts more contrasting and silvery, including the white mark on the mid tarsi.

Subgenus WYEOMYIA Theobald

WYEOMYIA (WYEOMYIA) LONGIROSTRIS Theobald

WYEOMYIA LONGIROSTRIS Theobald, Mon. Culic., ii, 275, 1901.
Phoniomyia longirostris Theobald, Mon. Culic., iii, 311, 1903.
Phoniomyia longirostris Blanchard, Les Moust., 425, 1905.
Phoniomyia longirostris Theobald, Mon. Culic., iv, 598, 1907.
Phoniomyia longirostris Peryassú, Os Culic. do Braz., 290, 1908.
Phoniomyia longirostris Theobald, Mon. Culic., v, 576, 1910.
Phoniomyia longirostris Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez, 243, 1911.
Phoniomyia longirostris Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 6, 8, 1921.
Phoniomyia longirostris Dyar, Ins. Ins. Mens., xi, 172, 1923.
Miamyia (Dodecamyia) longirostris, Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Phoniomyia Dyar, Ins. Ins. Mens., xii, 226, 1924.
Wyeomyia longirostris Dyar, Ins. Ins. Mens., xiii, 226, 1925.
Phoniomyia longirostris Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 162, 1925.
WYEOMYIA (DYARINA) LATERALIS Petrocchi, Rev. del Inst. Bact., iv, 726, 1927.

Female—Proboscis long and slender, curved at outer third, longer than the abdomen, black with bronzy and blue reflection. Clypeus testaceous. Occiput black, a few white scales at vertex and below. Prothoracic lobes shining violaceous with coppery tint. Mesonotum with dark brown scales with slight coppery reflection; pleuræ and coxæ with silvery scales which take a black reflection in certain lights. Abdomen black dorsally, silvery white ventrally, the colors separated on the sides in a straight line, though the incisures are more or less black very narrowly. Legs black, with bronzy and blue reflection; mid tarsi with the second, third, and fourth joints yellowish white on the outer side. Outstanding scales of the wings narrowly linear, all black.

Male—Coloration as in the female, but the fourth and fifth joints of the mid tarsi are contrastingly black, while the white involves the tip of the first joint. Hypopygium (Plate V, Fig. 16): Side-piece stout and broad, the tip conical. Clasper with the stem long and slender, strongly curved; tip with two spines, on each side of which is an angular wing with a few setæ, one wing with a slender recurved arm. Tenth sternites broad and long, one margin narrowly and strongly chitinized, the tip toothed. Ninth tergites three rather short stout spines on each side of the broad but weak sclerite, connected by a narrow bridge. Mesosome of two pairs of appendages, the outer long with a quadrate terminal expansion, the inner small, pointed.

Larva—Unknown.*

* See footnote under the description of the larva of *Wyeomyia (Dodecamyia) incaudata* Root.

Brazil, Argentina. Porto das Caixas, Brazil, June 9, 1925 (F. M. Root).

Under the name *"Wyeomyia longirostris"* Theobald confused two species *Wyeomyia (Dodecamyia) quasilongirostris* Theob. (hereinafter described) and the present species. His description is founded mainly upon *quasilongirostris;* but the Bonnes found both among his types and restricted the name to the present form. Later Theobald recognized that there might be two forms mixed, and proposed the name *quasilongirostris.*

WYEOMYIA (WYEOMYIA) CARACULA Dyar and Núñez Tovar

WYEOMYIA (WYEOMYIA) CARACULA Dyar and Núñez Tovar, Notas Sobre Neuv. Dipt. Haem. de Venez., 6, 1927.

WYEOMYIA (WYEOMYIA) CARACULA Dyar and Núñez Tovar, Am. Journ. Hyg., viii, 90, 1928.

Female—Proboscis moderate, shorter than the abdomen, swollen at tip, black with blue reflection. Occiput black with blue reflection, a narrow white border behind the eyes, widening to a patch at lower part of side. Mesonotum black with strong bronzy and some blue reflection, a tuft of white scales on anterior edge; pleuræ silvery-scaled. Abdomen black above with blue reflection, white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection, mid tarsi white without on apical half of second, third, and fourth joints; hind tarsi white below continuously on third to fifth joints. Wing-scales narrow, the appressed ones outwardly toward tips of second to fourth veins narrowly triangular.

Male—Coloration of the female. Hypopygium (Plate CXXIII, Fig. 415): Side-piece long, ovate on basal three-fourths, the tip conical; three long hairs from a tubercle near base. Clasper with long, straight, slender stem, the tip widened into an irregular rounded head, an umbrella-shaped tip with notched margins and long cilia on one side, below which a slender arm depends, having an angle and thorn, the tip lying along the stem nearly to its middle, fimbriate on the end. Tenth sternites long and narrow, toothed. Ninth tergites quadrate, separated, each with six long lanceolate spines. Mesosomal appendages twisted and angular.

Larva—Unknown.

Venezuela (Mariara, Estado Carabobo).

Bred from larvæ found in the leaf-bases of Bromeliaceæ by Dr. M. Núñez Tovar.

WYEOMYIA (WYEOMYIA) ABEBELA Dyar and Knab

WYEOMYIA ABEBELA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 67, 1908.

Wyeomyia abebela Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 111, 1915.

Wyeomyia abebela Dyar, Ins. Ins. Mens., viii, 133, 1909.

Wyeomyia abebela Dyar, Ins. Ins. Mens., xii, 102, 1924.

Wyeomyia (Wyeomyia) abebela Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.

Wyeomyia (Wyeomyia) abebela Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 120, 1925.

Wyeomyia (Wyeomyia) abebela Dyar, Ins. Ins. Mens., xiii, 115, 1925.

Female—Proboscis moderate, bluish black. Occiput with brown scales with a blue reflection; a small white spot at vertex, continued as a narrow border behind the eyes to a large white spot at lower part of sides. Prothoracic lobes with blackish brown scales; white at base and narrowly so

at tip. Mesonotum with brown scales with bronzy and blue reflection; scales on front margin and below lateral angles whitish. Pleuræ and coxæ with silvery white scales. Abdomen black dorsally with bronzy and blue reflection; venter white, the colors separated on the sides in a straight line. Legs black with bronzy reflection. Wing-scales ligulate, wedge-shaped and denser at the tips of second to fourth veins.

Male—Hypopygium (Plate VI, Fig. 17): Side-piece rather slender, curved, narrow at tip, chitinized; three setæ close together near base. Clasper with long slender stem, the tip triangularly widened, incompletely trilobed; center lobe trigonate, pilose on the margin and with a little thumb-like projection on one angle; inner lobe broad and plate-like; outer lobe arising from the middle one beyond the origin of the outer, bent at right angles backward and again at right angles at its tip. Tenth sternites membranous, indistinct. Ninth tergites two broad lobes joined by a very slender bridge, each with about ten short and pointed spines.

Larva (Plate VI, Fig. 17)—Head rounded, somewhat wider than long; antennæ small, slender, a small tuft beyond middle. Upper head-hairs long, single, lower triple, long. Lateral comb of the eighth segment of large spines in a long, single row, the two rows nearly meeting ventrally. Air-tube long, tapered gradually from near base, terminal half uniform, slender; hairs distributed in two series, dorsal and ventral long, single, only the basal posterior tuft double. Anal segment about as long as wide, dorsal plate reaching well down the sides; dorsal tuft of two very long hairs on each side, lateral hairs single, long; subventral tuft five-haired, short. Anal gills unequal, the upper pair shorter than the lower, broadly lanceolate, with rounded tips.

Mexico (Córdoba).

This species has not been encountered elsewhere than in the original locality where it was found by the late Frederick Knab nearly 20 years ago. The larvæ occur in the water in the leaf-bases of epiphytic bromeliads.

WYEOMYIA (WYEOMYIA) SCOTINOMUS (Dyar and Knab)

PHONOMYIA SCOTINOMUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 209, 1907.
WYEOMYIA LEUCOPISTHEPUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 212, 1907.
WYEOMYIA DYMODORA Dyar and Knab, Proc. U. S. Nat. Mus. xxv, 68, 1908.
WYEOMYIA ABRACHYS Dyar and Knab, Smith. Misc. Colls., Quart. Iss., lii, 262, 1909.
WYEOMYIA CHRESTA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 263, 1909.
WYEOMYIA HAPLA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 265, 1909.
WYEOMYIA LABESBA Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 106, 1915.
Wyeomyia chresta, abrachys, leucopisthepus, hapla, and *scotinomus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 139, 141, 148, 156, and 157, 1915.
Wyeomyia leucopisthepus Dyar, Ins. Ins. Mens., vii, 134, 1919.
Wyeomyia (Wyeomyia) labesba Dyar, Ins. Ins. Mens., x, 188, 1922.
WYEOMYIA INCANA Dyar, Ins. Ins. Mens., x, 189, 1922.
Wyeomyia (Wyeomyia) leucopisthepus Dyar, Ins. Ins. Mens., xi, 66, 1923.
Wyeomyia (Wyeomyia) leucopisthepus and *scotinomus* Dyar, Ins. Ins. Mens., xi, 173, 1923.
Wyeomyia scotinomus Dyar and Shannon, Ins. Ins. Mens., xii, 88, 1924.
Wyeomyia (Wyeomyia) scotinomus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia (Wyeomyia) scotinomus Dyar, Ins. Ins. Mens., xiii, 113, 1925.

Wyeomyia (Wyeomyia) scotinomus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Tropl. Hyg. No. 13, 122, 1925.

Female—Proboscis long, slender, not as long as the abdomen, black. Occiput with black scales with green or bronzy reflection; a white patch at sides below. Prothoracic lobes with black scales with bronzy reflection. Mesonotum with black scales with bluish and bronzy reflection, pleuræ with silvery white scales. Abdomen bronzy black above, silvery white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection; mid tarsi with apical two-thirds of third, all of fourth and fifth joints white on outer side; hind tarsi with fourth and fifth joints white beneath except tip of fourth. Wing-scales ligulate, denser toward tip of wing, where they become subovate.

Male—Proboscis longer than in the female, as long as the abdomen. Tarsi with less of white, the mid tarsi with a white reflection only beneath strongest on second and third joints; hind tarsi white on basal half beneath. Hypopygium (Plate VI, Fig. 18): Side-piece rather long, stout and uniform, the tip curved and narrowed. Three approximated setæ from large tubercles near base. Clasper with long, slender stem, the tip widened, with four lobes; main lobe a quadrately widened plate with even termen and a row of setæ across the disk; outer arm slender, with a tubercle at middle and at tip; inner arm small and recurved; fourth arm curved, fimbriate, often lying across the disk of the main lobe as the "core arm." Tenth sternites long but membranous, the tips chitinized and dentate. Ninth tergites small, riding on a slender curved bridge, each with two stout rather short setæ. Mesosome of two pairs of appendages half as long as the tenth sternites, forming miniature duplications of them.

Larva (Plate VI, Fig. 18)—Head rounded, about as wide as long. Antennæ slender, small, a small tuft beyond the middle. Upper head-hair short, in four; lower single. Lateral comb of the eighth segment of about twenty scales in a single straight row. Air-tube about six times as long as wide, covered uniformly but sparsely with moderate single hairs, less dense terminally. Anal segment about as long as wide, dorsal plate coming well down the sides; dorsal tuft of two long hairs on each side; lateral hair single, long; subventral tuft short, in six on each side. Anal gills over twice as long as the segment, stout with rounded tips.

Panama.

This species, though common in Panama, has not been recognized from elsewhere. The larvæ occur in the water in the leaf-bases of epiphytic and terrestrial bromeliads, both those with smooth and spiny leaves. No observations of the species biting man are on record.

WYEOMYIA (WYEOMYIA) CAMPTOCOMMA Dyar

Wyeomyia camptocomma Dyar, Ins. Ins. Mens., xii, 116, 120, 1924.
Wyeomyia (Wyeomyia) camptocomma Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.

Female—Proboscis long, not quite as long as the abdomen, moderately slender, black with bluish reflection. Occiput with black scales with bluish reflection, a narrow white border behind the eyes running to a patch on the side below. Prothoracic lobes with black scales with bronzy and blue reflection, a white patch below and more or less white scales at tip. Mesonotum

with black scales, with bronzy and blue reflection dorsally; below white the colors separated on the sides in a straight line. Legs black with blue reflection, femora and tibiæ white below; mid tarsi with the tip of the third, fourth, and fifth joints white below; hind tarsi with the third, base of the fourth, and all the fifth joints white below, leaving a blacker spot at apex of fourth joint. Wing-scales narrow, the ones at the tips of the second to fourth veins broader and denser.

Male—The proboscis is somewhat longer than in the female, being as long as the abdomen. Coloration the same. Hypopygium (Plate VI, Fig. 19): Side-piece rather long, stout, and uniform, the tip curved and narrowed. Three approximate setæ from large tubercles near middle. Clasper with long, slender stem, the tip widened, with four lobes; main lobe a quadrately widened plate with evenly hollowed termen and a row of setæ across the disk. Outer arm swollen at base, tip slender, a tubercle at middle and at tip; inner arm slender, as long as the outer, slightly swollen at base; fourth arm broad and fimbriate, often lying across the disk of the main lobe. Tenth sternites long and slender, rather membranous, the tips chitinized and dentate. Ninth tergites small, riding on a slender curved bridge, each with two stout setæ. Mesosome of two pairs of appendages, the longer pair half as long as the tenth sternites, slender, pointed.

Larva (Plate VI, Fig. 19)—Head rounded, about as wide as long. Antennæ slender, small, a small tuft beyond the middle. Upper head-hair in three, lower double, both short. Lateral comb of the eighth segment of about twenty scales in a single straight row. Air-tube about six times as long as wide, slightly fusiform; single widely spaced hairs distributed all over, but the apical third of the tube is bare or nearly so. Anal segment about as long as wide, dorsal plate coming well down the sides; dorsal tuft of two long hairs on each side; lateral hair single, long; subventral tufts short, in twelves on each side.

Colombia, Venezuela, Ecuador (?).

Rancho Grande, Venezuela, September 14, 1927 (M. Núñez Tovar); also perhaps the following record, based on the female alone: Guayaquil, Ecuador, No. 135 (F. Campos Ribadeneira).

Maj. L. H. Dunn found the larvæ in water held by the leaf-bases of "elephant's ear" *(Colocasia)*. Dr. Núñez Tovar found them in saxicolous Bromeliaceæ. I have no record of the adults biting man.

W. W. charmion Dyar. p. 30.

WYEOMYIA (WYEOMYIA) GAUDIANS Dyar and Núñez Tovar

WYEOMYIA (WYEOMYIA) GAUDIANS Dyar and Núñez Tovar, Notas Sobre Neuv. Dipt. Haem. de Venez., 5, 1927.

WYEOMYIA (WYEOMYIA) GAUDIANS Dyar and Núñez Tovar, Am. Journ. Hyg., viii, 89, 1928.

Female—Proboscis long, but shorter than the abdomen, slightly swollen at tip, black with blue reflection. Occiput black, a small white spot at vertex and narrow border behind the eyes, widening on the sides below. Prothoracic lobes dull blue, with white scales at base and tip. Mesonotum with black scales with bronzy reflection, the pleuræ with silvery scales. Abdomen black above with blue reflection, pearly white below, the colors separated on the sides in a straight line. Legs black with blue and bronzy reflection, the mid tarsi bright white on the outside of tip of second, third to the fifth joints; hind tarsi with white marks at the bases of second of fifth

joints below, that on the fourth joint a long streak, reaching most of the length of the joint. Wing-scales long, linear, the outstanding ones so to the wing-tip, the appressed ones outwardly broader.

Male—Coloration of the female. Hypopygium (Plate CXXIII, Fig. 416): Side-piece long, parallel-sided, curved at tip, and narrowed; three long setæ from a tubercle at basal third. Clasper with long, straight stem, the tip widened into a triangular structure; disk triangular, with a row of tubercles running parallel to one margin and reaching the other before tip; inner arm rounded quadrate, large, with a point and two spines; outer arm recurved, with reflexed appendiculate tip; core-arm very large and well detached, almost as long as the central disk. Tenth sternites slender, long, denticulate at tip, the mesosomal plates similar on smaller scale. Ninth tergites forming a prominent bridge, with three lanceolate spines on either side.

Larva—Unknown.

Venezuela (Mariara, Estado Carabobo); also perhaps the following record, based on the female alone: Mocha Village, Demerara River, British Guiana, May 1909 (H. W. B. Moore).

Bred from larva found in the leaf-bases of Bromeliaceæ by Dr. M. Núñez Tovar, associated with *Wyeomyia (Phyllozomyia) celænocephala* and *Wyeomyia (Wyeomyia) quasiluteoventralis* in about the proportion of one *gaudians* to two *quasiluteoventralis* and three *celænocephala*.

WYEOMYIA (WYEOMYIA) GAUSAPATA Dyar and Núñez Tovar

WYEOMYIA (WYEOMYIA) GAUSAPATA Dyar and Núñez Tovar, Notas Sobre Neuv. Dipt. Haem. de Venez., 7, 1927.

WYEOMYIA (WYEOMYIA) GAUSAPATA Dyar and Núñez Tovar, Am. Journ. Hyg., viii, 91, 1928.

Female—Proboscis rather long, about as long as the abdomen, slightly swollen beneath, black. Occiput black with blue reflection, a white border behind the eyes. Prothoracic lobes dark like the mesonotum, white-tipped. Mesonotum gray-brown; pleuræ and coxæ with silvery scales. Abdomen blackish dorsally, white ventreally, the colors separated on the sides in a straight line. Legs black with bronzy reflection; mid tarsi with second to fifth joints white outwardly; hind tarsi with white spot at base of the third joint below, the fourth and fifth joints white below, interrupted by black at tip of fourth. Wings with the outstanding scales narrow, the appressed ones trigonate.

Male—Coloration of the female, the legs showing more of white reflection. Hypopygium (Plate CXXIII, Fig. 417): Side-piece parallel-sided, curved at tip; three long hairs from near base. Clasper with stout, straight stem, not quite as long as the apical portion; central arm long, cone-shaped, slightly capitate at tip, a row of close tubercles scattered at the summit; outer arm large, with two tubercles; inner arm short, forming a row of rather large digitate processes arranged in fan-shape; core-arm solid, truncate, with a point on one side of tip, striate throughout. Tenth sternites slender, finely toothed at tip. Ninth tergites forming a bridge with two long spines on each side. Mesosome reduplicating the tenth sternites in miniature.

Larva—Unknown.

Venezuela (Ocumare de la Costa).

The specimens were bred from water in bamboo joints, but probably belong normally in Bromeliaceæ.

WYEOMYIA (WYEOMYIA) QUASILUTEOVENTRALIS (Theobald)

DENDROMYIA QUASILUTEOVENTRALIS Theobald, Mon. Culic., iii, 317, 1903.
WYEOMYIA TELESTICA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 65, 1906.
Dendromyia quasiluteoventralis Theobald, Mon. Culic., iv, 607, 1907.
WYEOMYIA ABASCANTA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 65, 1908.
WYEOMYIA ABIA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 67, 1908.
Dendromyia quasiluteoventralis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 260, 1911.
Wyeomyia abascanta, abia, and *telestica* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 78, 113, and 137, 1915.
Dendromyia quasiluteoventralis and *abia* Dyar, Ins. Ins. Mens., vii, 124, 1919.
Diphalangarpe abascanta Dyar, Ins. Ins. Mens., vii, 126, 128, 1919.
Wyeomyia telestica Dyar, Ins. Ins. Mens., vii, 130, 1919.
Dendromyia quasiluteoventralis Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 11, 1921.
Wyeomyia quasiluteoventralis Dyar, Ins. Ins. Mens., xii, 113, 115, 1924.
Wyeomyia telestica Dyar, Ins. Ins. Mens., xii, 115, 1924.
Wyeomyia (Wyeomyia) quasiluteoventralis Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia (Wyeomyia) telestica Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia (Wyeomyia) abia and *telestica* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 120, 124, 1925.

Female—Proboscis moderate, swollen apically, black with bronzy and blue reflection. Occiput with brown scales with bronzy reflection, a small white spot at vertex; a white border behind the eyes, not attaining vertex, joined to a white spot below. Prothoracic lobes with violaceous scales with coppery reflection. Mesonotum with brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, with slight metallic reflection, yellowish white below, the colors separated on the sides in a straight line. Legs black with bronzy and blue reflections; mid tarsi with tips of second, third to fourth or fifth joints white on the outer side. Wings with the outstanding scales long ligulate, denser and broader outwardly on second to fourth veins.

Male—As in the female. Hypopygium (Plate VII, Fig. 20): Side-piece slender, cylindrical, curved and narrowed at tip; strongly chitinized outwardly; three setæ close together from conspicuous tubercles at basal third. A quadrate spinose plate on inner side. Clasper with long, slender stem and four arms; mid one broad, plate-like with a quadrate projection at one angle, setose on outer margin. Inner arm small, angled, swollen; outer arm swollen at base, slender outwardly with two tubercles; core-arm broad, pilõse, rounded at tip with small central point. Tenth sternites long and slender, rather membranous, the tips chitinized and dentate. Ninth tergites small, riding on a slender curved bridge, each with two stout setæ. Mesosome paired, columnar, each part with two more or less distinct finger-shaped processes at tip.

Larva (Plate VII, Fig. 20)—Head rounded, about as wide as long; antennæ small, slender. Head-hairs short, in tufts, the upper with more hairs than the lower. Lateral comb of the eighth segment of twenty-two spines in a straight row. Air-tube straight, tapered on outer half, over five times as long as wide; two irregular rows of single hairs and a triple tuft near base behind. Anal segment longer than wide; dorsal plate reaching well down the sides. Dorsal tuft of two long hairs on each side; lateral hair

single, long; subventral tuft short, in eight on each side. Anal gills longer than the segment, bluntly pointed.

Trinidad, British Guiana, Surinam, Venezuela, and Dominica. Maracay, Aragua, Venezuela, August 20 to September 13, 1926 (M. Núñez Tovar).

The larvæ live in the water in the leaf-bases of epiphytic and terrestrial bromeliads. No records of this species biting man have been made.

WYEOMYIA (WYEOMYIA) OBLITA (Theobald)

Dendromyia oblita Lutz in Bourroul, Mosq. do Brasil, 49, 68, 1904 (nomen nudum).
DENDROMYIA OBLITA Theobald, Mon. Culic., iv., 612, 1907.
Dendromyia oblita Peryassú, Os Culic. do Brazil, 299, 1908.
DENDROMYIA MEDIOALBIPES Peryassú, Os Culic. do Brazil, 303, 1908.
Dendromyia medioalbipes Theobald, Mon. Culic., v, 593, 1910.
Dendromyia mitchellii Theobald (not Theobald), Mon. Culic., iv, 605, note, 1910.
Dendromyia mitchellii Surcouf and Gonzales Rincones (not Theobald), Ess. Dipt. Vul. Venez., 262, 1911.
Dendromyia oblita Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 263, 1911.
WYEOMYIA FALLAX Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 119, 1919.
Dendromyia oblita Dyar, Ins. Ins. Mens., vii, 128, 1919.
Wyeomyia fallax Dyar, Ins. Ins. Mens., vii, 131, 1919.
Wyeomyia oblita Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 10, 1921.
Wyeomyia oblita Dyar, Ins. Ins. Mens., xii, 116, 1924.
Wyeomyia (Wyeomyia) oblita Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia (Wyeomyia) oblita Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Col. Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 119, 1925.

Female—Proboscis deep brown with violet reflection. Occiput with brown scales with violet reflection; a white spot at vertex; a narrow white border to the eyes. Prothoracic lobes with brown scales and white ones below. Mesonotum with dusky scales, showing violet reflection; pleuræ and coxæ with silvery white scales. Abdomen deep brown with violet reflection, yellowish white below, the colors separated on the sides in a straight line. Legs deep brown with bronzy and violet reflections; mid tarsi with apex of second, third to fifth joints dull white without. Wings with the outstanding scales narrowly linear; appressed ones shorter and broader, especially toward the tips of the second to fourth veins.

Male—Coloration of the female. Hypopygium (Plate VII, Fig. 21): Side-piece over twice as long as wide, tips rounded; three long hairs below the middle; a subquadrate lobe-like prominence near the middle bearing many minute hairs. Clasper with long and slender stem, central lobe broad and expanded, one angle strongly produced, the outer margin with fine hairs; lateral lobes much smaller and simple. Tenth sternites curved at apex, ending in two moderate teeth. Each lobe of the ninth tergite with two stout spines.

Larva (Plate VII, Fig. 21)—Head rounded; antennæ small, with a two-haired tuft. Lateral comb of the eighth segment of many spines in a long uniform row. Two long hairs behind the comb. Air-tube subcylindrical with rounded tip; a number of irregularly placed long hairs; a few small two-haired tufts near base. Anal segment as long as wide, plate large, reaching well down the sides. Subventral hairs a multiple tuft. Anal gills longer than the segment.

Brazil (São Paulo and Goyaz), Surinam (Paramaribo).

The larvæ were found in the water in the leaf-bases of Bromeliaceæ. The form described is the one from Surinam (*fallax* B.-W. and B.); I have seen

no male of the Brazilian form and do not know that it is the same, but follow Bonne and Bonne-Wepster in the synonymy. Dr. Root took three females at Rio de Janeiro and Porto das Caixas, Brazil, February 1, June 9 and 29, 1925; but unfortunately did not meet with the species in his cultures.

WYEOMYIA (WYEOMYIA) PERTINANS (Williston)

AËDES PERTINANS Williston, Trans. Ent. Soc. Lond., 271, 1896.
WYEOMYIA GRAYII Theobald, Mon. Culic., ii, 269, 1901.
Wyeomyia perturbans (not Williston) and *pertinans* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 246 and 247, 1911.
Wyeomyia pertinans and *grayii* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 135 and 136, 1911.
Wyeomyia grayii Dyar, Ins. Ins. Mens., vii, 127, 1919.
Wyeomyia pertinans Dyar, Ins. Ins. Mens., vii, 128, 1919.
Wyeomyia pertinans and *grayii* Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 10, 1921.
Wyeomyia grayii Dyar, Ins. Ins. Mens., ix, 26, 1921.
Wyeomyia pertinans Dyar, Ins. Ins. Mens., xii, 105, 1924.
Wyeomyia (Wyeomyia) pertinans Dyar and Shannon, Jour. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia (Wyeomyia) pertinans and *grayii,* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Aft. Trop. Hyg. No. 13, 121 and 127, 1925.

Female—Proboscis moderate, swollen apically, black with bronzy and blue reflection. Occiput with brown scales with bronzy reflection; a small white spot at vertex; a white border behind the eyes joining a patch on lower part of side. Prothoracic lobes with violaceous scales with coppery reflections. Mesonotum with brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, with slight metallic reflection, yellowish white below, the colors separated on the sides in a straight line. Legs black with bronzy and blue reflections; no white markings. Wings with the outstanding scales long, ligulate, denser, and broader outwardly on second to fourth veins.

Male—No specimen is before me. Bonne-Wepster and Bonne describe the hypopygium as follows: "Clasper with long stem and three short lobes, one broad, squarely ended, with one angle produced, with a series of small hairs on the margin; lateral lobes much smaller, one with a bent appendage. No core visible." This is the same structure as in *oblita.*

Larva—Unknown.

Lesser Antilles (St. Vincent).

WYEOMYIA (WYEOMYIA) FLAVIFACIES Edwards

WYEOMYIA FLAVIFACIES Edwards, Bull. Ent. Res., xiii, 82, 1922.
Wyeomyia (Wyeomyia) flavifacies Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 128, 1925.

Female—Proboscis slender, a little longer than the abdomen, the tip not enlarged. Occiput with dark scales with purplish reflection; a silvery margin behind the eyes, enlarging into a bluish white vertical spot. Prothoracic lobes with violet scales. Mesonotum with the integument ocherous, the scales dark brown; pleuræ and coxæ with silvery white scales. Abdomen

blackish above, golden below, the colors separated on the sides in a straight line. Legs dark (last three joints of hind tarsi missing). Wings with the outstanding scales linear, all dark.

Male—Unknown.

Larva—Unknown.

British Guiana (Aruka River).

This species is not before me. The description has been compiled from that of Edwards. Except for the longer proboscis and yellowish integument, this species must come very close to *pertinans*.

WYEOMYIA (WYEOMYIA) MITCHELLII (Theobald)

DENDROMYIA MITCHELLII Theobald, Mosq. or Culic. of Jamaica, 37, 1905.
WYEOMYIA OCHRURA Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 227, 1906.
WYEOMYIA GLAUCOCEPHALA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 140, 1906.
WYEOMYIA VIOLESCENS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 138, 1906.
WYEOMYIA ANTOINETTA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss. lii, 263, 1909.
Wyeomyia violescens, mitchellii, antoinetta, and *glaucocephala* Howard, Dyar, and Knab, Mosq., No. and Cent. Am. and W. I., iii, 79, 80, 83, and 136, 1915.
Dendromyia violescens, Wyeomyia glaucocephala, and *mitchellii* Dyar, Ins. Ins. Mens., vii, 125, 133, 1919.
Wyeomyia (Wyeomyia) mitchellii Dyar, Proc. U. S. Nat. Mus., lxii, 5, 1922.
Wyeomyia (Wyeomyia) mitchellii Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia mitchellii Dyar, Ins. Ins. Mens, xii, 105, 1924.
Wyeomyia (Dendromyia) violescens, (Wyeomyia) mitchellii, and *glaucocephala* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 110, 115, 123, 1925.

Female—Proboscis moderate, swollen at tip, bronzy black, narrowly pale beneath. Occiput with brown scales with iridescent reflection; a small white spot at vertex; a patch below, continued upward as a narrow border along half of the eyes. Prothoracic lobes bronzy violet, narrowly paler at tip; basal half silvery. Mesonotum with dark brown scales with bronzy and blue reflection. Pleuræ and coxæ with silvery white scales. Abdomen black above with slight bronzy and blue reflection, yellowish white below, the colors separated on the sides in a straight line. Legs black with bronzy and blue reflection; mid tarsi with apical portion of second, third, fourth and fifth joints white on outer side; hind tarsi with white marks at the bases of all the joints beneath, varying from large to very small or even obsolete. Wings with the outstanding scales ligulate, broader and denser outwardly on the second to fourth veins.

Male—Essentially as in the female; mid legs with a yellowish silvery shade beneath. Hypopygium (Plate VII, Fig. 22): Side-piece slender, cylindrical, curved and narrowed at tip; strongly chitinized outwardly; three setæ close together from conspicuous tubercles at basal third. A quadrate spinose plate, the pair separated from the side-pieces and contiguous. Clasper with long, slender stem and four arms; mid one broad, plate-like, one angle folded and somewhat broadly produced, hirsute; no row of setæ on the disk. Lateral arms reduced, the inner small, the outer slender and rather long, with swollen base. Core-arm broad and rounded at tip. Tenth sternites slender, weak, the tips indistinctly dentate. Ninth tergites small, riding on a slender curved bridge, each with two stout setæ. Mesosome broad and square, indistinct.

Larva (Plate VII, Fig. 22)—Head rounded, about as wide as long;

antennæ small, cylindrical, a single hair at outer third. Lateral comb of eighth segment of many single spines in a long straight row. Air-tube four times as long as wide, tapered on outer half, with fine single hairs sparsely distributed. Anal segment as long as wide, dorsal plate reaching well down the sides. Dorsal hairs two long ones on each side; lateral hair single, long; subventral tuft short in ten on each side.

Southern Florida, Cuba, Jamaica, Santo Domingo.

The larvæ are found in the water in the leaf-bases of epiphytic Bromeliaceæ. The adults will bite man if given the opportunity.

WYEOMYIA (WYEOMYIA) GUATEMALA Dyar and Knab

WYEOMYIA GUATEMALA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 139, 1906.
WYEOMYIA ADELPHA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 140, 1906.
WYEOMYIA HOMOTHE Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 211, 1907.
WYEOMYIA ABLABES Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 66, 1908.
WYEOMYIA ABLECHRA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 66, 1908.
WYEOMYIA ROLONCA Dyar and Knab, Proc. Ent. Soc. Wash., xi, 173, 1910.
Dendromyia guatemala and *homothe* Dyar, Ins. Ins. Mens., vii, 124 and 125, 1919.
Wyeomyia guatemala, homothe, ablabes, and *adelpha,* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 75, 91, 104, and 126, 1915.
Wyeomyia ablabes and *adelpha* Dyar, Ins. Ins. Mens., vii, 132, plate v, figs. 6 and 7, 1919.
Wyeomyia adelpha Dyar, Ins. Ins. Mens., vii, 132, 1919.
Wyeomyia (———) homothe and *(Wyeomyia) rolonca* Dyar, Ins. Ins. Mens., ix, 173, 1923.
Wyeomyia guatemala Dyar, Ins. Ins. Mens., xii, 101, 1924.
Wyeomyia homothe Dyar, Ins. Ins. Mens., xii, 102, 1924.
Wyeomyia (Wyeomyia) guatemala Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia (Dendromyia) guatemala and *homothe* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 109, 1925.
Wyeomyia (Wyeomyia) ablabes, adelpha, and *rolonca,* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 116, 117, and 127, 1925.

Female—Proboscis rather long, but shorter than the abdomen, tip somewhat expanded, bluish black, brighter bronzy beneath. Prothoracic lobes with bronzy violaceous scales, the apices and bases more or less silvery. Occiput with brown scales with iridescent reflection; a white line behind the eyes, somewhat narrowed at vertex, joining a white spot at lower part of side. Mesonotum with dark brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally with slight blue and bronzy reflection; venter white, the colors separated on the sides in a straight line. Legs black with bronzy reflection; mid tarsi with apical half of second, the third to fifth joints white on the outer side; hind tarsi with small white spots at the base of each joint beneath. Wings with the outstanding scales ligulate, broader and denser towards the tips of the second to fourth veins.

Male—Coloration as in the female. Hypopygium (Plate VIII, Fig. 23): Side-piece elongate, cylindrical, the tip curved and narrowed, strongly chitinized without; three setæ close together at basal third. A pair of quadrate spinose plates within. Clasper with long, slender stem with four arms; middle part forming an elliptical body with a row of setæ across it; side-

arms slender and small, the inner hooked, the outer longer and with a seta; core-arm long, pilose, usually appearing flattened against the side of the main body. Tenth sternites long, slender, the tips less membranous and toothed. Ninth tergites small lumps on a narrow bridge bearing one to two stout, strong spines, usually one on one side and two on the other. Mesosome forming a pair of appendages resembling the tenth sternites but not really toothed.

Larva (Plate VIII, Fig. 23)—Head rounded, about as wide as long; antennæ slender, moderate, a small double hair beyond the middle. Upper head-hairs in fours, lower in twos, long. Lateral comb of the eighth segment a row of many single spines becoming finer ventrally. Air-tube four times as long as wide, slightly tapering on outer half; numerous single hairs scattered rather evenly over the surface. Anal segment longer than wide, dorsal plate reaching well down the sides. Dorsal hairs, two long ones on each side; lateral tuft of two long hairs; subventral tuft short, of about ten hairs. Anal gills somewhat longer than the segment, broad, with pointed tips.

Mexico, Guatemala, Salvador, Costa Rica, and Panama.

The larvæ live in the water in the leaf-bases of Bromeliaceæ. The adults fly by day and will bite in the vicinity of their breeding-places.

WYEOMYIA (WYEOMYIA) SIMMSI (Dyar and Knab)

PHONOMYIA SIMMSI Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 65, 1908.

Wyeomyia simmsi Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 146, 1915.

Wyeomyia simmsi Dyar, Ins. Ins. Mens., vii, 121, 1919.

WYEOMYIA ROLONCETTA Dyar, Ins. Ins. Mens., vii, 131, pl. v, fig. 16, 1919.

Wyeomyia (———) simmsi and *(Wyeomyia) roloncetta* Dyar, Ins. Ins. Mens., xi, 173, 1923.

Wyeomyia simmsi Dyar, Ins. Ins. Mens., xii, 117, 1924.

Wyeomyia (Wyeomyia) simmsi Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.

Wyeomyia (Wyeomyia) simmsi Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 123 and 127, 1925.

Wyeomyia (Wyeomyia) simmsi Dyar, Ins. Ins. Mens., xiii, 114, 1925.

Female—Proboscis rather long and slender, not as long as the abdomen, bluish black, bronzy beneath. Occiput with brown scales with bronzy and blue reflection; a small white spot at the vertex and a large one at lower part of side, continuing behind the eyes as a partial narrow border. Prothoracic lobes with violaceous scales with bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally with slight bronzy reflection, yellowish white ventrally, the colors separated on the sides in a straight line. Legs black with a bronzy reflection; hind tarsi with third joint with a white spot at base below, basal two-thirds of fourth and fifth joints white beneath. Wings with the scales ligulate, broader and denser apically on second to fourth veins.

Male—Similar to the female, but the mid tarsi have the third joint white beneath except at base, the fourth and fifth joints black. Hypopygium (Plate VIII, Fig. 24): Side-piece elongate, flattened cylindrical, the tip curved and narrowed. Strongly chitinized; three approximate setæ near the middle. Clasper with long, slender stem, the tip a swollen bulb with

apical point. Side-arms obsolete, but the two setæ of the outer arm remain. Core-arm distinct, broad, pilose, crossing the disk of the bulb. Tenth sternites long, slender, rather membranous, the tips infuscated and dentate. Ninth tergites slight thickenings on a narrow transverse bridge, each bearing two minute spines. Mesosome two pairs of processes following and similar to the tenth sternites, about half the length of these; inner pair with pointed tip, trifid at apex; outer pair obscurely spinose at tip.

Larva (Plate VIII, Fig. 24)—Head rounded, about as wide as long. Antennæ rather long, slender, a double hair at outer third. Lateral comb of the eighth segment of about twenty spines in a long, single row, reaching well toward ventral line. Air-tube long, slightly fusiform towards base, slightly tapering outwardly, about seven times as long as wide; numerous short, evenly spaced two-haired tufts throughout. Anal segment as long as wide, dorsal plate reaching well down the sides. Dorsal tuft of two long hairs on each side; lateral hair single, long; subventral tufts small, five-haired on each side. Anal gills somewhat longer than the segment, broad, rounded at tip.

Panama.

Bred from water between the leaves of epiphytic Bromeliaceæ. This species was taken at Porto Bello, but has not been found in the Canal Zone. In the monograph (vol. iv, p. 147) a wrong male was associated, a specimen of *scotinomus*.

WYEOMYIA (WYEOMYIA) MELANOPUS Dyar

WYEOMYIA MELANOPUS Dyar, Ins. Ins. Mens., vii, 130, Pl. v, fig. 4, 1919.
WYEOMYIA (MENOLEPIS) CULEBRÆ Dyar, Ins. Ins. Mens., xi, 65, 1923.
Wyeomyia (Wyeomyia) melanopus and *Wyeomyia (Menolepis) culebræ* Dyar, Ins. Ins. Mens., xi, 173 and 174, 1923.
Wyeomyia melanopus Dyar, Ins. Ins. Mens., xii, 115, 1924.
Wyeomyia (Wyeomyia) melanopus Dyar and Shannon, Journ. Wash. Acad Sci., xiv, 480, 1924.
Wyeomyia (Menolepis) culebræ and *Wyeomyia (Wyeomyia) melanopus* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 78 and 116, 1925.
Wyeomyia (Wyeomyia) melanopus Dyar, Ins. Ins. Mens. xiii, 115, 1925.

Female—Proboscis moderate, stout, slightly swollen at tip, black with blue and bronzy reflection. Occiput black with submetallic blue reflection; a white border behind the eyes, widening a little at vertex and joining a patch on side below. Prothoracic lobes with violaceous scales with bronzy luster. Mesonotum dark brown with slight bluish reflection; pleuræ and coxæ with silvery white scales. Postnotum with a few small white scales in the middle. Abdomen black above, with dull bluish reflection; white-scaled below, the colors separated on the sides in a straight line. Legs black, with strong bronzy luster. Wing-scales with the outstanding ones linear, smaller, and denser toward the outer part of veins 2 to 4, all dark.

Male—Coloration as in the female. The postnotum does not show any white scales. Hypopygium (Plate IX, Fig. 27): Side-piece elongate, flattened cylindrical, the tip curved and narrowed. Strongly chitinized; three approximate setæ near the middle. Clasper with long, slender stem, the tip forming a bulb with pointed tip and a little angled on one side; side-arms and core-arm obsolete. Tenth sternites long, slender, bent in the middle, the tips infuscated and dentate. Ninth tergites slight expansions on a transverse rounded bridge, each with two or three large, stout spines. Mesosome

two pairs of appendages, the inner large, with triangularly hooked tip; the outer smaller, obscurely spinose at tip.

Larva—Unknown.

Panama.

The male was bred from water in the leaf-bases of epiphytic Bromeliaceæ, but larvæ were not preserved.

Subgenus PENTEMYIA Dyar

WYEOMYIA (PENTEMYIA) BROMELIARUM Dyar and Knab

WYEOMYIA BROMELIARUM Dyar and Knab, Proc. Biol. Soc. Wash., xix, 138, 1906.
WYEOMYIA ESPARTANA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 140, 1906.
WYEOMYIA PANAMENA Dyar and Knab, Jour. N. Y. Ent. Soc., xv, 210, 1907.
DENDROMYIA ARTHROSTIGMA Peryassú, Os Culic. do Braz., 306, 1908.
WYEOMYIA DRAPETES Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 264, 1909.
Dendromyia arthrostigma Theobald, Mon. Culic., v, 593, 1910.
Dendromyia arthrostigma Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 261, 1911.
Wyeomyia espartana, draptes, panamena, and *bromeliarum,* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 108, 109, 115 and 131, 1915.
Pentemyia bromeliarum Dyar, Ins. Ins. Mens., vii, 122, 1919.
Wyeomyia (Pentemyia) bromeliarum Dyar, Ins. Ins. Mens., xi, 174, 1923.
Wyeomyia (Pentemyia) bromeliarum Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia (Pentemyia) bromeliarum Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 101, 1925.
Wyeomyia (Pentemyia) bromeliarum Dyar, Ins. Ins. Mens., xiii, 115, 1925.

Female—Proboscis rather short, the tip expanded, bronzy black with a brighter luster beneath. Palpi with white tips. Occiput with brown scales with bronzy and blue reflection; a narrow white margin behind the eyes, tending to form a white spot at vertex, joining a large white spot below. Prothoracic lobes with blackish submetallic scales, silvery white at base and tip. Mesonotum dark brown with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally with slight metallic reflection, yellowish white ventrally, the colors separated on the sides in a straight line. Legs black with bronzy reflection. Wing-scales rather long, ligulate, shorter and denser toward the tips of the second to fourth veins.

Male—Coloration as in the female. Hypopygium (Plate VIII, Fig. 25): Side-piece elongate, flattened cylindrical, the tip curved and narrowed. Strongly chitinized, the apical half infuscated. Three approximate setæ before the middle. Clasper with long, slender stem; tip divided into three lobes. Outer lobe erect with a slightly hooked tip and row of setæ; middle lobe upright, slender, smooth; inner lobe projecting at right angles, broadly rounded, bearing a row of setæ towards apex. Tenth sternites long, slender, curved outwardly, the tips infuscated and dentate. Ninth tergites on a broad band, connected by a narrow bridge, each a row of six to eight stout, rather short setæ. Mesosome of two pairs of appendages, inner long, slender, tapering outwardly; outer short, sinuate, ending in a short chitinized point.

Larva (Plate VIII, Fig. 25)—Head rounded; antennæ small, cylindrical, smooth. Head-hairs both single. Lateral comb of the eighth segment of about twelve smooth thorn-shaped scales in a straight row, preceded by an elongate irregularly elliptical plate. Air-tube moderate, about three times as long as wide, conically tapered outwardly; a few scattered hairs, mostly

single. Anal segment about as wide as long; dorsal plate reaching well down the sides. Dorsal tuft of five long hairs on each side, two and three; lateral tuft in three, long; subventral tuft small, in about eight on each side.

Costa Rica, Panama, Venezuela, Trinidad, and Brazil. Maracay, Aragua, Venezuela, December 15, 1926 (M. Núñez Tovar); Rio de Janeiro, Brazil, February, May, and June, 1925 (F. M. Root).

The larvæ are especially addicted to the water in bamboo joints, though occasionally occurring in tree-holes or artificial containers if foul. The Bonnes record this species doubtfully from Surinam. All of the species strongly addicted to bamboo are poorly represented in their list, probably because the plant was not abundant in their vicinity. The name *"bromeliarum"* in an unfortunate misnomer. The larvæ are never found in the water in bromeliaceous plants.

Subgenus DYARINA Bonne-Wepster and Bonne

WYEOMYIA (DYARINA) TRIPARTITA Bonne-Wepster and Bonne

Wyeomyia longirostris Howard, Dyar, and Knab (not Theobald), Mosq. No. and Cent. Am. and W. I., iii, 61, 1915.

Wyeomyia longirostris Dyar (not Theobald), Ins. Ins. Mens., vii, 121, 1919.

Dyarina tripartita Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 7, 1921.

Wyeomyia leontiniæ Dyar (not Brèthes), Ins. Ins. Mens., ix, 150, 1921.

Wyeomyia (Phoniomyia) fuscipes Edwards, Bull. Ent. Res., xiii, 76, 1922.

Dyarina leontiniæ Dyar (not Brèthes), Ins. Ins. Mens., xii, 110, 1924.

Wyeomyia (Dyarina) leontiniæ Dyar and Shannon (not Brèthes), Journ. Wash. Acad. Sci., xiv, 480, 1924.

Wyeomyia (Dyarina) tripartita Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 133, 1925.

Wyeomyia (Dyarina) muhlensi Petrocchi, Rev. del Inst. Bact., iv, 727, 1927.

Female—Proboscis long and slender, as long as the abdomen, black with bronzy purple luster. Occiput with black scales with purple submetallic reflection; a metallic purple spot at vertex; a silvery white patch on side. Prothoracic lobes with golden and purple metallic scales, base silver-scaled. Mesonotum with golden and purple scales; scutellum silvery; pleuræ and coxæ with silver scales. Abdomen black above, silvery white below, the white incising the black sharply at the sides anteriorly on the segments. Legs black with strong bronzy reflection. Hind tarsi more or less distinctly marked with white at base of third to fifth joints beneath. Wings with the outstanding scales long, linear, shorter, and denser toward the tips of second to fourth veins.

Male—Coloration as in the female, mid tarsi with second joint except its base, third and fourth silvery white below. Hypopygium: Side-piece long, flattened cylindrical, slightly swollen centrally. Clasper long, slender, trifid; a simple arm at middle, shorter than the apical part; a long branch near base, widened at tip, circular-capitate, with a little included terminal hook. Tenth sternites long, strong, wide, but chitinized only on one margin; six separated teeth at tip. Ninth tergites longer than wide, arising from a broad curved bridge which is narrower between them, each with four strong spines and sometimes a fifth outer weak one.

Larva—Unknown.

Brazil and Argentina.

Mr. R. C. Shannon has shown me mounts of male hypopygia of specimens from Chaco and Corrientes, Argentina, Petrocchi's types of *muhlensi*.

WYEOMYIA (DYARINA) TRINIDADENSIS Theobald

WYEOMYIA TRINIDADENSIS Theobald, Mon. Culic., ii, 277, 1901.
Wyeomyia trinidadensis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 59, 1915.
Wyeomyia trinidadensis Dyar, Ins. Ins. Mens., vii, 121, 1919.
Dodecamyia trinidadensis Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 7, 1921.
DYARINA LASSALLI Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 8, 1921.
Phoniomyia trinidadensis Dyar, Ins. Ins. Mens., xii, 109, 1924.
Wyeomyia (Dyarina) lassalli Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Miamyia (Dodecamyia) trinidadensis Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Dodecamyia) trinidadensis and *Wyeomyia (Dyarina) lassalli* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 71 and 133, 1925.

Female—Proboscis long and slender, as long as the abdomen, black with bronzy purple luster. Occiput with black scales with purple submetallic reflection; a metallic purple spot at vertex; a silvery white patch on side. Prothoracic lobes with golden and purple metallic scales; base silver-scaled. Mesonotum with golden and purple scales; scutellum silvery; pleuræ and coxæ with silver scales. Abdomen black above, silvery white below, the white incising the black sharply at the sides anteriorly on the segments. Legs black with strong bronzy reflection. Mid tarsi with second joint except its base, third and fourth silvery white below. Hind tarsi more or less distinctly marked with white at base of third to fifth joints beneath. Wings with the outstanding scales long, linear, shorter, and denser toward the tips of second to fourth veins.

Male—Coloration as in the female. Hypopygium (Plate IX, Fig. 26): Side-piece, long, flattened-cylindrical, slightly swollen centrally. Clasper long, slender, trifid; a simple arm at middle, shorter than the apical part; a long branch near base, widened at tip, circular capitate, setose, and with an impressed line. Tenth sternites long, strong, wide, but chitinized only on one margin; six separated teeth at tip. Ninth tergites longer than wide, arising from a broad curved bridge which is narrower between them, each with four strong spines and sometimes a fifth outer weak one.

Larva (Plate IX, Fig. 26)—Head rounded, as wide as long; antennæ slight, cylindrical, smooth, a small hair at outer third. Head-hairs in multiple tufts. Lateral comb of the eighth segment of many spines in two irregular rows, the single spines very long and fringed with spinules. Air-tube slender, six times as long as wide, strongly tapered, at outer third less than half the basal width; subdorsal and subventral series of long, single, feathered hairs in a row on each side, the apical ones smaller and more remote. A false pecten of several long, closely crowded teeth. Anal segment about as long as wide; dorsal plate reaching well down the sides. Dorsal tuft of three long hairs on each side; lateral tuft of two long hairs; subventral tuft small, in about six on each side. Anal gills nearly three times as long as the segment, lanceolate.

The larvæ occur in the water in the leaf-bases of epiphytic Bromeliaceæ.

Trinidad, Venezuela (Ocumare de la Costa, August 12, 1927, a single female, bred from bamboo by Dr. M. Núñez Tovar).

Theobald described *"Wyeomyia trinidadensis"* from Trinidad from females only. It was associated with males from the same place by

Coquillett and by Dyar and Knab. The Bonnes were not justified, therefore, in transferring the name to a *Dodecamyia* from Brazil which they assumed to occur also in Trinidad. There is such a species in Brazil, and the females are similar to those of *trinidadensis;* but the restriction having been already made, the Bonnes were not justified in altering it. For the Brazilian species in question, the name *quasilongirostris* is available.

WYEOMYIA (DYARINA) PALLIDOVENTER (Theobald)

PHONIOMYIA PALLIDOVENTER Theobald, Mon. Culic, iv, 598, 1907.
Phoniomyia pallidoventer Peryassú, Os Culic. do Brazil., 54, 293, 1908.
Phoniomyia pallidoventer Theobald, Mon. Culic., v, 577, 1910.
Phoniomyia pallidoventer Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 245, 1911.
Dyarina pallidoventer Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 9, 1921.
Dyarina pallidoventer Dyar, Ins. Ins. Mens., xii, 110, 1924.
? Wyeomyia (Dyarina) pallidoventer Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 480, 1924.
Wyeomyia (Dyarina) pallidiventer Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 134, 1925.

Female—Presumably similar to the male.

Male—Proboscis deep brown, curved, longer than the abdomen. Occiput with dark scales with dull violet reflections, silvery in front. Mesonotum with brown scales; pleuræ and coxæ with silvery white scales in patches. Abdomen black above, with metallic violet reflections; silvery white below, the colors separated on the sides in a zigzag line. Legs deep brown; mid-tarsi with second to fourth joints white-marked, the fifth joint black. Hind tarsi with the last two joints white at base beneath. Hypopygium (Plate IX, Fig. 27M): Side-piece long, rather slender, cylindrical, the tip conically tapered, strongly chitinized. Clasper longer than the side-piece, a long cylindrical filament, curved near base; two shorter pointed branches at basal third; basal branch curved, narrowed, then widely furcate, the outer arm with a sharply reflexed terminal filament, the inner longer, roundedly widened at its attachment. Tenth sternites chitinized on one side, the tips dentate. Ninth tergites longer than wide, from a highly arcuate thick bridge, each with three spines densely placed.

Larva—Unknown.

Brazil. Angra dos Reis, Brazil, from a bromeliad (N. C. Davis). The adult is indistinguishable from that of *trinidadensis,* but the male hypopygium is obviously different.

Subgenus NUNEZIA Dyar

WYEOMYIA (NUNEZIA) BICORNIS (Root)

DENDROMYIA (EUNICEMYIA) BICORNIS Root, new species (here published).

Female—Unknown.

"*Male*—Proboscis a little longer than abdomen, moderately slender, curved, black with purplish reflection. Occiput silvery white. Prothoracic lobes violet, shading into silvery posteriorly. Mesonotum black with bronzy reflection; posterior pronotum, scutellum, and pleuræ with patches of silvery scales; postnotum black, with a group of about four brown bristles. Abdomen slightly compressed laterally, black, with green and bronzy reflections,

silvery white ventrally, the colors separated on the sides in a straight line. Legs black with bronzy reflection; femora white below on basal two-fifths; Tarsi entirely dark. Wings with the appressed scales broad, the outstanding ones long and slender. Hypopygium: Side-piece conical, short, strongly chitinized all over one side; clasper long, slender, curving and with a small shoulder at basal third of the stem, the tip expanded, cup-shaped, one angle of the cup quadrately prominent, and two stout spines on the margin in reversed direction. Tenth sternites with narrow chitinized margin, the tip expanded and bearing five teeth. Ninth tergites on a broad, band-shaped bridge, with three stout spines on each side.

"*Larva*—Head rounded, flattened behind; antennæ small. Head-hairs multiple, upper in six, lower in two. Lateral comb of the eighth segment of many spines, several rows deep, the posterior row of large scales. Air-tube long, tapered, with about 25 long spines in posterior false pecten; a paired tuft toward base and two single hairs toward apex; on dorsal aspect five split hairs, the basal one single. Anal segment about as broad as long, the plate reaching below middle of the sides; dorsal tuft a brush and long two-haired tuft on each side; lateral hair in three, from the angle of the plate; subventral tuft short, in eight. Anal gills longer than the segment, with rounded tips."—F. M. Root.

Venezuela.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ, and are similar to those of *Wyeomyia (Dodecamyia) splendida* B.-W. and B.

This species was placed in *Dendromyia (Eunicemyia)* before an adult was before me; but it is evident from the description which Dr. Root has furnished me, from the narrow outstanding scales of the wing, that it should be placed in *Wyeomyia,* where it will form a new subgenus near *Dodecamyia,* for which I propose NUNEZIA, in honor of Dr. M. Núñez Tovar, my esteemed collaborator.

Subgenus DODECAMYIA Dyar

WYEOMYIA (DODECAMYIA) APHOBEMA Dyar

WYEOMYIA APHOBEMA Dyar, Ins. Ins. Mens., vi, 120, 1918.
Wyeomyia aphobema Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 114, 1919.
Dodecamyia aphobema Dyar, Ins. Ins. Mens., vii, 138, 1919.
WYEOMYIA BODKINI Edwards, Bull. Ent. Res., xiii, 81, 1922.
Phoniomyia bodkini Dyar, Ins. Ins. Mens., xii, 109, 1924.
Phoniomyia aphobema Dyar, Ins. Ins. Mens., xii, 109, 1924.
Miamyia (Dodecamyia) aphobema Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Miamyia (Dodecamyia) bodkini Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Dodecamyia) aphobema Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 66, 1925.

Female—Proboscis long, rather slender, as long as the abdomen, blackish with faint bronzy reflection. Occiput black-scaled with bluish reflection, a white patch on the side below. Prothoracic lobes dark blue with metallic reflection. Mesonotum with dark brown scales with slight blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black above with blue reflection, white below, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection; mid tarsi with the second joint except at base, the third to fifth silvery white on the outer side, and

beneath also, somewhat less extensively. Wings with the outstanding scales narrow, broadly linear, becoming ovate toward the tips of veins 2 to 4.

Male—Coloration as in the female. Hypopygium (Plate XII, Fig. 36): Side-piece short, conical, as wide as long; on the inner side about the middle a small capitate lobe bears a row of coarse ensiform spines, the most basal of them especially stout. Clasper as long as the side-piece, slender, a little widened without and bearing some small setæ. Tenth sternites slender, chitinized, slightly toothed at tip. Ninth tergites strongly developed, each a broad lobe connected by a very short, thick bridge, each with four broad blade-like pointed spines, the innermost one shorter than the others. Mesosome of two pairs of appendages forming a broad arc, the outer pair close to the inner, but the points directed upward.

Larva (Plate XII, Fig. 36)—Head rounded, wider than long, the labial spines large. Antennæ small, a hair at outer fourth. Upper head-hairs in three, lower in two. Lateral comb of the eighth segment of rather large scales in an irregular patch three rows deep. Air-tube five times as long as wide, slightly fusiform centrally. A long two-haired tuft near base, followed by an irregular false pecten nearly to tip; dorsally many long, single hairs, uniformly distributed. Anal segment as long as wide; dorsal tuft of two hairs on each side; lateral hair single; subventral tuft in six, very short. Anal gills not much longer than the segment, narrow, tapered.

Surinam and British Guiana.

It is possible that *bodkini* represents a distinct species. Edwards indicates differences in the mid tarsal claw; but it is uncertain how much importance is to be attached to this. The larvæ occur in Bromeliaceæ.

WYEOMYIA (DODECAMYIA) SPLENDIDA Bonne-Wepster and Bonne

WYEOMYIA SPLENDIDA Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 111, 1919.
Dodecamyia splendida Dyar, Ins. Ins. Mens., vii, 139, 1919.
Phoniomyia splendida Dyar, Ins. Ins. Mens., xii, 109, 1924.
Miamyia (Dodecamyia) splendida Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Dodecamyia) splendida Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 68 and 71, 1925.

Female—Proboscis long and slender, longer than the abdomen, black with bronzy reflection, especially below. Occiput black, silvery white below. Prothoracic lobes brilliant metallic purple. Mesonotum brown, mottled with golden or all golden; pleuræ and coxæ with silver scales, showing black in some lights. Abdomen black above, silvery white below, the colors separated on the sides in an undulating line, the white incising the black anteriorly on the segments. Legs black with bronzy reflection; mid tarsi with second to fifth joints silvery white without; hind tarsi with second to fifth joints white below, the fourth and fifth almost entirely white except tip of fourth. Wings with the scales ovate, the outstanding ones narrowly ovate, not linear, all dark.

Male—Coloration as in the female. Hypopygium (Plate XIII, Fig. 38): Side-piece short, tapering outwardly; just before the tip a group of five long filaments with the tips bent at right angles arises from a fan-shaped base. Clasper long, simple, narrowed at base and with a number of small setæ outwardly. Tenth sternites large, broad, one margin strongly narrowly chitinized; tips dentate. Ninth tergites developed, connected by a long, broad

bridge, each with three enormous thick spines, curved at tip. Mesosome with two pairs of appendages, the inner short, stout, triangularly expanded at tip; the outer long, stout, uniform, with pointed tips.

Larva (Plate XIII, Fig. 38)—Head rounded; antennæ rather long, slender, a two-haired tuft beyond middle. Head-hairs multiple and strong, the upper in six, lower about the same. Lateral comb of the eighth segment a very large patch of spines some four rows deep, the posterior spines elongated. Air-tube six times as long as wide, the basal half thick and tapering, the outer half slender. A long false pecten behind from base to beyond middle; a subbasal long two-haired tuft; eight single hairs on outer half of tube; dorsally a row of fourteen long, single hairs, decreasing in length outwardly. Anal segment as long as wide, the plate reaching well down the sides; dorsal tuft two long and one short hairs on each side; lateral hairs single, long; subventral tuft about eight, short.

Surinam and British Guiana.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ.

WYEOMYIA (DODECAMYIA) QUASILONGIROSTRIS (Theobald)

PHONIOMYIA QUASILONGIROSTRIS Theobald, Mon. Culic., iv, 598, 1907.
Phoniomyia quasilongirostris Peryassú, Os Culic. do Braz., 290, 1908.
Phoniomyia quasilongirostris Theobald, Mon. Culic., v, 577, 1910.
Phnoiomyia quasilongirostris Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 244, 1911.
Dodecamyia quasilongirostris Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 8, 1921.
Miamyia (Dodecamyia) quasilongirostris Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Dodecamyia) quasilongirostris Bonne and Bonne-Wepster, Mosq. of Surinam, Roy. Col. Inst. Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 71, 1925.

Female—Proboscis long and slender, longer than the abdomen, black, with bronzy and blue reflection. Occiput black, a silvery patch on the side below. Prothoracic lobes shining metallic purple. Mesonotum brown, more or less mottled with golden, or all golden or purplish in certain lights; pleuræ and coxæ with silver scales. Abdomen black above, silvery white below, the colors separated on the sides in an irregular line, the white cutting the black anteriorly on the segments, the black triangles running onto the venter across the lateral edge; on the last three segments dorsally are narrow basal transverse silvery bands. Legs black with bronzy reflection; mid tarsi with second to fifth joints silvery white outwardly; hind tarsi with the fourth joint white below except at tip, the fifth all white below. Wings with the outstanding scales linear, narrowly ovate toward the tips of second to fourth veins, all dark.

Male—Coloration as in the female. Hypopygium (Plate XII, Fig. 37): Side-piece short, conical, tip small; a few short, bristly hairs at vertex. Clasper long and slender, a little spatulately expanded at tip and with a number of setæ there, as long as side-piece. Tenth sternites very large, reaching end of side-piece, rather broad, chitinized on one margin, the tip dentate. Ninth tergites strongly developed, each broad, quadrate, shorter within, bearing six long, rather stout tapering spines, the pair connected by a short, narrow bridge. Mesosome with a pair of stout cylindrical appendages (the inner), the outer pair being thin and delicate.

Larva (Plate XII, Fig. 37)—Head rounded; antennæ small, a single hair outwardly; upper head-hair cleft, lower single. Lateral comb of the eighth

segment about ten sharp spines on the posterior edge of a large chitinous plate. Air-tube about three times as long as wide, stoutly conical; many two-haired tufts and single hairs on both surfaces; a larger three-haired tuft toward base below. Anal segment as long as wide, the dorsal plate reaching far down the sides. Dorsal tuft four (2+2) on each side; lateral hair double, long; subventral tuft is six on each side, rather long.

Brazil, bred from Bromeliaceæ. Sant' Anna, Brazil, February 9, 1925 (F. M. Root); Porto das Caixas, Brazil, June 9, 1925 (F. M. Root); Magé, Brazil, June 21, 1925 (F. M. Root); Rio de Janeiro, Brazil, May 24, 1925 (F. M. Root); Iguazu, Misiones, Argentina, October, 1927 (R. C. Shannon).

This is the species covered in Theobald's description of *"Weyomyia longirostris."* He included in his types, however, a female of a different species, which the Bonnes later made the lectotype of the name. Later Theobald separated the forms originally confused, erecting the name *quasilongirostris* for the present form, although it might apply to either *pilicauda* or *incaudata*. The Bonnes identified the present form with some females from Trinidad which Theobald had described as *trinidadensis*, which name they used in this sense. However, previously, Dyar and Knab had identified males from Trinidad as the males of *trinidadensis* which were not the males of the present form. Since the identification of females alone is uncertain, the first restriction of the species by males from the same locality is binding. The Bonnes supposed that the Trinidad females were the same as those from Brazil, but there was no proof of that. The name *trinidadensis* should be used in the sense of Dyar and Knab, leaving the present form as *quasilongirostris*. Mr. F. W. Edwards kindly informs me that Theobald's type of *quasilongirostris* has the abdominal colors deeply incised.

WYEOMYIA (DODECAMYIA) INCAUDATA Root

Wyeomyia (Dodecamyia) incaudata Root, new species (here published).

Female—Unknown.

"Male—Abdomen black dorsally, the segments cut laterally anteriorly by large white triangles; venter largely black, with white triangular marks anteriorly, posteriorly all black except the last segment. Hypopygium (Plate XIII, Fig. 39): Side-piece conical, obliquely inserted, with hairs only around the notched tip. Clasper short, simple, with four hairs on the outer half. Tenth sternites very large, exceeding the side-pieces, one margin chitinized, the tip finely serrate with as many as twelve teeth. Ninth tergites long and finger-shaped, three times as long as wide; at tip three spines closely crowded, arising far apart from the tergite itself, which forms a large, narrow posterior loop between them. Mesosome with two pairs of appendages, rather well developed, the inner more darkly colored than the outer, the two pairs touching by their tips. On the eighth segment ventrally posteriorly is a large group of fine and rather long hairs from conspicuous tubercles."—F. M. Root.

Larva (Plate XIII, Fig. 39)—Head rounded, the antennæ small, with a three-haired tuft outwardly. Upper head-hair in two, lower in four, the four tufts above front margin multiple. Lateral comb of the eighth segment of small spines in a triangular patch four rows deep. Air-tube long and slender, seven times as long as wide, tapered; long single hairs at both surfaces, two of them two-haired; a ventral false pecten of long spines from near base to beyond middle. Anal segment as long as wide, the plate reach-

ing middle of side; dorsal tuft of four (2+2) on each side; lateral hair double, long; subventral tuft about five on each side, short.*

Brazil, bred from Bromeliaceæ. Rio de Janeiro, Brazil, February 15, May 1, 1925 (F. M. Root).

The adult is probably similar to *quasilongirostris*.

WYEOMYIA (DODECAMYIA) PILICAUDA Root

WYEOMYIA (DODECAMYIA) PILICAUDA Root, new species (here published).

"*Female*—Proboscis long and slender, longer than the abdomen, black with bronzy and blue reflection. Occiput black, a silvery patch on the side below. Prothoracic lobes shining metallic purple. Mesonotum brown, more or less mottled with golden, or all golden or purplish in certain lights; pleuræ and coxæ with silver scales. Abdomen black above, silvery white below, the colors separated on the sides in an irregular line, the white cutting the black anteriorly on the segments; the black triangles not running onto the ventral area; on the last three segments dorsally are narrow basal transverse silvery bands. Legs black with bronzy reflection; mid tarsi with second to fifth joints silvery white outwardly; hind tarsi with the fourth joint white below except at tip, the fifth all white below, all the white markings broad. Wings with the outstanding scales linear, narrowly ovate toward the tips of second to fourth veins, all dark.

"*Male*—Coloration as in the female. Hypopygium (Plate XIV, Fig. 41): Side-piece rather long, smooth, the tip conically tapered; a group of hairs at tip. Clasper simple, narrow at base, elliptical outwardly, covered rather densely with hairs. Tenth sternites large, not as long as the segment, chitinized on one margin, the tips finely dentate. Ninth tergites long, finger-shaped, with two spines at tip which are practically consolidated, arcuately excavate at base, joined by a slender weak bridge. Mesosome of two pairs of appendages, the inner stronger, curved, the tips touching; the outer weak but long, directed straight outward, pointed. Eighth segment rounded, produced ventrally with a small oval tubercular area bearing long, coarse yellow hairs, which are widened and plate-like outwardly."—F. M. Root.

Larva (Plate XIV, Fig. 41)—Head rounded; antennæ slender with a single hair outwardly. Upper head-hairs double, lower in four; tufts above the anterior margin multiple. Lateral comb of the eighth segment of small spines in a patch four rows deep. Air-tube very long and slender, about eight times as long as wide; many not very long single hairs over both surfaces; a ventral pecten of long spines except at base and apex. Anal segment as long as wide, the plate reaching the middle of the side; dorsal tuft in three (2+1) on each side; lateral hair single; subventral tuft of five, rather long.

Brazil, bred from Bromeliaceæ. Rio de Janeiro, Brazil, June 7, 1925 (F. M. Root).

Genus MIAMYIA Dyar

MIAMYIA Dyar, Ins. Ins. Mens., vii, 116, 1919.
CLEOBONNEA Dyar, Ins. Ins. Mens., vii, 134, 1919.
SHROPSHIREA Dyar, Ins. Ins. Mens., x, 97, 1922.
Miamyia Dyar and Shannon, Jour. Wash. Acad. Sci., xiv, 480, 1924.
TECHNICHOMYIA Dyar, Ins. Ins. Mens., xiii, 20, 1925.

*Dr. Root writes me that he thinks I confused his material, and that this larva is really that of *longirostris* and not of *incaudata*, the larva of which he did not succeed in isolating.

A genus of small sabethid mosquitoes allied to *Dendromyia* but somewhat more varied and specialized. Some of the larvæ live in the water in bamboo or husks, but others are addicted to Bromeliaceæ or other water-bearing plants. Little is on record about their habits. Two species formerly found in Panama were exterminated by the destruction of the bamboo by flooding and cutting.

No pronotal setæ; prealar setæ present; spiracular setæ present. Lower sternopleurals not extending as far as the upper margin of the lateral metasternal sclerite; wing-scales broad.

Table of Species

ADULT

1. Mid and hind tarsi white-marked 2
   Mid tarsi only white-marked . . . . . *petrocchiæ* Shannon and Del Ponte
   Hind tarsi only white-marked . . . . . *hemisagnosta* Dyar and Knab
   Hind tarsi dark 5
2. Abdominal colors separated on sides in a straight line . . *hosautus* Dyar and Knab
   The dorsal dark color incised by ventral white on the sides 3
3. White on the hind tarsi continuous; proboscis moderate 4
   This white interrupted; proboscis very long 5
4. Prothoracic lobes white below, dark above . . . . . *codiocampa* Dyar and Knab
   Prothoracic lobes entirely dark . . . . . *serrata* Theobald
5. Mid tarsi white-marked . . . . . { *argenteorostris* Bonne-Wepster and Bonne; *roucouyana* Bonne-Wepster and Bonne; *ypsipola* Dyar; ♂ *occulta* Bonne-Wepster and Bonne; ♂ *negrensis* Gordon and Evans }
   Tarsi all dark . . . . . { *florestan* Dyar; ♀ *occulta* Bonne-Wepster and Bonne; ♀ *negrensis* Godran and Evans; *pampithes* Dyar and Núñez Tovar }

MALE HYPOPYGIUM

1. Clasper with three short arms and a fourth downturned one; tenth sternites produced, with tuft of spines or long hairs; lateral angles of eighth segment roundedly produced *(Miamyia)* 2
   Clasper varied, but otherwise; tenth sternites normal; angles of eighth segment not produced 4
2. Tenth sternites toothed at tip 3
   Tenth sternites produced into a single-pointed horn . . . *hosautus* Dyar and Knab
3. Outer lobe of eighth segment with many coarse setæ, *codiocampa* Dyar and Knab
   This lobe with about nine very coarse setæ . . . . . *serrata* Theobald
4. Clasper with three or four similar arms, one of them triangularly widened *(Cleobonnea)* 5
   Clasper with the arms irregular and unlike, modified to base of clasper *(Shropshirea)* 7
5. Triangular division of clasper small, little differentiated from the others, *argenteorostris* Bonne-Wepster and Bonne
   Triangular lobe large, the others small 6
6. Mid side-arm bearing a row of setæ near its base, *occulta* Bonne-Wepster and Bonne
   Without this structure . . . . . *negrensis* Gordon and Evans
7. Clasper wtih a row of setæ at base, two arms and a hook at tip; clasper divided to the base into slender arms . . . . . *florestan* Dyar

8. A tuft of setæ at tip of side-piece . . . . . *ypsipola* Dyar
   No tuft of setæ in this position . . . . . *pampithes* Dyar and Núñez Tovar

No male is known of the following species: *Hemisagnosta, roucouyana, petrocchiæ.*

LARVA

1. Air-tube with six spines; maxillæ with horn and side-teeth . . . . *ypsipola* Dyar
   Not so formed 2
2. Comb-scales of eighth segment few, on a plate 3
   These scales in a patch 4
   These scales in a single row 6
3. Air-tube long and slender . . . . . *hosautos* Dyar and Knab
   Air-tube much shorter . . . . . *codiocampa* Dyar and Knab
4. Air-tube without false pecten . . . . . *hemisagnosta* Dyar and Knab
   Air-tube with false pecten 5
5. False pecten beyond middle of tube . . . . . *negrensis* Gordon and Evans
   This pecten reaching below middle of tube . . . *occulta* Bonne-Wepster and Bonne
6. Comb of about twelve large scales; head-hairs single,
   roucouyana Bonne-Wepster and Bonne
   Comb of more and smaller scales; head-hairs double,
   argenteorostris Bonne-Wepster and Bonne

The larvæ of the following species are unknown: *Serrata, florestan, pampithes, petrocchiæ.*

Subgenus MIAMYIA Dyar

MIAMYIA (MIAMYIA) CODIOCAMPA (Dyar and Knab)

WYEOMYIA CODIOCAMPA Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 209, 1907.
Wyeomyia codiocampa Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 101, 1915.
Miamyia codiocampa Dyar, Ins. Ins. Mens., vii, 117, 1919.
Wyeomyia (Miamyia) codiocampa Dyar, Ins. Ins. Mens., xi, 171, 1923.
Miamyia (Miamyia) codiocampa Dyar and Shannon, Jour. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Miamyia) codiocampa Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 82, 1925.
Miamyia (Miamyia) codiocampa Dyar, Ins. Ins. Mens., xiii, 117, 1925.

Female—Proboscis rather short and stout, enlarged apically, black with bronzy reflection. Occiput brown with metallic reflection; a small white spot at vertex; a narrow border along the lower half of the eye, widening to patch below. Prothoracic lobes brown in the middle, white at base and tip. Mesonotum with brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, venter yellowish white, the colors separated on the sides in a zigzag line, the white incising the dark posteriorly on the segments. Legs black, with bronzy reflection; mid tarsi with apex of second, third, and fourth joints white without; hind tarsi with second and third joints white beneath. Wing-scales mostly small and triangular; some outstanding ones on third vein and in the cell narrowly linear, all dark.

Male—Coloration as in the female; the white on the tarsi somewhat differently distributed. Mid tarsi with third joint except at base and all of fourth joint white outwardly; hind tarsi with first three and base of fourth joint white beneath. Hypopygium (Plate IX, Fig. 28): Ninth and

tenth segments weakly chitinized, the eighth developed, lobed, bearing two sets of very strong spinous setæ on each side. Side-piece expanded in the middle, broadly cylindrical at tip. Three setæ in a row before middle, somewhat weak. Clasper with moderately long, slender stem with four lobes outwardly; a small simple reflexed one; apical lobe transverse, pointed and setose on one end, bearing the other two lobes, one erect and pointed with a group of hairs at base, the other reversed along the stem, notched at base, bearing recurved hairs at tip. Tenth sternites long, narrow, membranous, toothed at tip; a tuft of long hairs arising from a notch before tip. Ninth segment band-shaped above, narrowly so below, the tergites rudimentary, a group of four or five little setæ on each side. Mesosome of two pairs of appendages, the outer rather long, rather slender, notched and falsely toothed at tip; the inner similar, shorter, narrower, pointed.

Larva (Plate IX, Fig. 28)—Head rounded; antennæ small, a single hair beyond the middle. Head-hairs single; anteantennal tuft in three. Lateral comb of the eighth segment on a large, irregularly elliptical plate, six large teeth. Air-tube four times as long as wide, slightly tapered; two single hairs on dorsal aspect, one ventrally at basal fourth and one near tip. Anal segment longer than wide; dorsal plate reaching well down the sides; dorsal tuft four long hairs on each side; lateral tuft of three, long; subventral tuft multiple, short.

Panama.

Before the destruction of the bamboo in the Canal Zone, this species was occasional in bamboo woods, the larvæ in the water in cut stems. No new material has been received since 1909.

MIAMYIA (MIAMYIA) SERRATA (Theobald)

DENDROMYIA SERRATA Theobald, Mon. Culic., iv, 615, 1907.
Dendromyia serrata Peryassú, Os Culic. do Braz., 301, 1908.
Dendromyia serrata Theobald, Mon. Culic., v, 591, 1910.
Dendromyia serrata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 263, 1911.
Miamyia serrata Dyar, Ins. Ins. Mens., vii, 117, 1919.
Miamyia (Miamyia) serrata Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Miamyia) serrata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 83, 1925.

Female—Proboscis rather short and stout, enlarged apically, black with bronzy reflection. Occiput brown with metallic reflection; a small white spot at vertex; a narrow border along the lower half of eye, widening to a patch below. Prothoracic lobes brown in the middle, white at base and tip. Mesonotum with brown scales, with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, venter yellowish white, the colors separated on the sides in a zigzag line, the white incising the dark posteriorly on the segments. Legs black with bronzy reflection; tarsi show whitish reflection below, strongest in the hind legs. Wings with the outstanding scales on second and fourth veins broadly ligulate; some narrow ones in the cell and on fifth vein, all dark.

Male—Coloration as in the female; the mid tarsi have the third and fourth joints bright white outwardly; hind tarsi with the third, fourth and fifth joints white below. Hypopygium (Plate X, Fig. 29): Ninth and tenth segments weak; eighth strongly developed with two lobes on each

side, upper bearing many fine hairs from large tubercles, lower with five enormous spines in a close row. Side-piece rather short and stout, the tip lengthily stoutly produced. Three approximate setæ before middle; a single stouter one beyond. Clasper directed laterally from the tip of the extension of side-piece, a stout slightly swollen stem with a small fimbriate expansion beyond middle; tip widely expanded, one arm broadly sickle-shaped, the other pointed and with a spine from a prominence. Tenth sternites long and slender, the tip with separated spines; a crest of long waved hairs from the dorsal surface before tip. Ninth tergites a broad weak bridge, each side with a row of rather long spines, about eight in number, the two rows nearly joining in mid ventral line. Mesosome of two pairs of appendages, the outer larger, forming together a hood-like tip with a point on each side; inner pair smaller, the tips falsely toothed.

Larva—Unknown.

Brazil.

The National Museum possesses a single male specimen, kindly presented by Dr. Adolpho Lutz many years ago.

MIAMYIA (MIAMYIA) HOSAUTOS (Dyar and Knab)

WYEOMYIA HOSAUTUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 211, 1907.
WYEOMYIA SYMMACHUS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 262, 1909.
WYEOMYIA EUETHES Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 263, 1909.
Wyeomyia hosautus and *Wyeomyia symmachus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 112 and 142, 1915.
Miamyia symmachus Dyar, Ins. Ins. Mens., vii, 117, 1919.
Wyeomyia (Miamyia) hosautus Dyar, Ins. Ins. Mens., x, 190, 1922.
Wyeomyia (Miamyia) hosautus Dyar, Ins. Ins. Mens., xi, 171, 1923.
Miamyia (Miamyia) hosautus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Miamyia) hosautus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 81, 1925.

Female—Proboscis moderate, slightly swollen at tip, bronzy black. Occiput with brown scales, with bronzy and blue reflection; a small white spot at vertex; a narrow white margin behind the eye, not quite attaining vertex, joined to a patch on lower part of side. Prothoracic lobes with blackish scales with bronzy luster; a silvery patch at base. Mesonotum with dark brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally, yellowish white ventrally, the colors separated on the sides in a straight line. Legs black with bronzy reflection; mid tarsi with outer two-thirds of second joint to fifth silvery white without; hind tarsi with the last two joints silvery beneath. Wings with the scales broadly wedge-shaped with truncate apices, all dark.

Male—Coloration as in the female. Hypopygium (Plate X, Fig. 30): Ninth and tenth segments somewhat weak, though the side-pieces are well chitinized. Eighth segment with one rounded lateral angle covered with fine long hairs. Side-piece cylindrical, flattened, the tip curved at right angles roundedly and narrowed. Three small contiguous setæ near the middle. Clasper with a rather slender, moderate, curved stem, the apex expanded at right angles. A membrane arises on the middle of the stem on both sides, expanded and thin, the wider expansion forming a broad hook, and radiately striated; the expanded tip ends triangularly on one side, spatulate on the other, and bears a spine about the middle. Tenth sternites

enlarged outwardly, the tip projecting laterally as a great single spine; crest consolidated, forming a large spatulate structure, from the tip of which ten spines project like the teeth of a comb. Ninth tergites weak, a rather broad bridge with six short spines on each side, widely separated. Mesosome of two pairs of small appendages, the outer pair the larger.

Larva (Plate X, Fig. 30)—Head as long as wide; antennæ small; lower head-hairs single. Air-tube long, about seven times as long as wide; two single hairs on dorsal aspect near the middle, one on ventral aspect toward the base and another toward apex. Lateral comb of the eighth segment of five pointed teeth upon a large plate, which is angled in the middle and bears a hair at upper and lower margins. Anal segment longer than wide; dorsal plate spined on posterior margin; dorsal tuft of two long hairs on each side; lateral hair single, long; subventral tuft of three on each side, rather long. Anal gills somewhat longer than the segment, the tips rounded.

Panama.

This species was bred several times from water in cut bamboo stems before the flooding of the Chagres Valley destroyed this plant. No specimens of *hosautos* have been found since this time, nearly 20 years ago.

Subgenus CLEOBONNEA Dyar

MIAMYIA (CLEOBONNEA) OCCULTA (Bonne-Wepster and Bonne)

WYEOMYIA OCCULTA Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 105, 1919.
Wyeomyia (Cleobonnea) occulta Dyar, Ins. Ins. Mens., vii, 134, 1919.
Miamyia (Cleobonnea) occulta Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Cleobonnea) occulta Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Hyg. No. 13, 92, 1925.

Female—Proboscis moderate, stout, swollen at tip, dark brown with bluish reflection. Occiput with dark brown scales, eyes with a narrow white border, joining a patch on the side below. Prothoracic lobes with dark brown scales with violaceous reflection. Mesonotum with dark brown scales with slight bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, white below, the colors separated on the sides in a straight line. Legs dark brown with strong bronzy reflection. Wing-scales triangular, the apices truncate, all dark dense and uniform.

Male—Coloration as in the female, except that the mid tarsi have the second to fifth joints white outwardly. Hypopygium (Plate X, Fig. 31): Side-piece stout, conically and strongly tapered at tip. Clasper trigonate in outline, divided into three lobes close to the base; outer lobe triangular, with fringe of small hairs along the margin; mid lobe slender, with a setose area and small branch near middle; basal lobe linear, hooked at tip. Tenth sternites broad, chitinized at tip, ending in a single strong tooth. Ninth tergites forming a weak, narrow bridge with two short, stout spines on each side, the pairs remote.

Larva (Plate X, Fig. 31)—Head rounded; antennæ small, a single hair beyond the middle. Upper head-hair single, lower double. Comb of the eighth segment of many small scales in a patch three rows deep. Air-tube short, about three times as long as wide; a false pecten on posterior margin on the outer three-fourths of tube; a tuft of hairs at basal fourth posteriorly, followed by three small tufts before apex; four tufts on dorsal aspect, rather irregularly distributed. Anal segment as long as wide, the plate reaching well down the sides; dorsal tuft of five long hairs on each side; lateral hair

single; subventral tuft in six on each side, long. Anal gills very long, four times as long as the segment, tapering outwardly.

Surinam.

Dr. and Mrs. Bonne found the larvæ in jelly-like masses of fluid at the bases of *Heliconia* leaves at all times of the year. The larvæ were of very slow growth, some of them being kept in the laboratory for four months before they pupated.

MIAMYIA (CLEOBONNEA) NEGRENSIS (Gordon and Evans)

WYEOMYIA NEGRENSIS Gordon and Evans, Ann. Trop. Med. and Par., xvi, 319, 1922.
Miamyia (Cleobonnea) negrensis Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Cleobonnea) negrescens Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 94, 1925.

Female—Proboscis moderate, stout, swollen at tip, dark brown with bluish reflections. Occiput with dark brown scales, eyes with a narrow white border behind, joining a patch on the side below. Prothoracic lobes with dark brown scales with violaceous reflection. Mesonotum with dark brown scales with slight bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, white below, the colors separated on the sides in a straight line. Legs dark brown with strong bronzy reflections. Wing-scales broadly elliptical, the apices not truncate.

Male—Coloration as in the female, except that the mid tarsi have the second to fifth joints brilliantly white outwardly. Hypopygium (Plate XI, Fig. 33): Side-piece stout, conically and strongly tapered at tip. Clasper trigonate in outline, divided into four lobes close to the base; outer lobe triangular, with a fringe of small hairs along the margin; a small appressed lobe under its tip; two mid lobes long and slender, each with a row of small setæ; basal lobe linear, hooked at tip. Tenth sternites broad, chitinized at tip, ending in a single strong tooth. Ninth tergites forming a weak, narrow bridge, with two short stout spines on each side.

Larva (Plate XI, Fig. 33)—Head wider than long. Air-tube about three times as long as wide; a false pecten of four spines on outer half. A tuft at basal fourth behind, and three tufts on the dorsal surface. Lateral comb of the eighth segment in a subtriangular patch. Anal segment with four hairs on each side dorsally; one lateral hair; subventral tufts in five on each side.

Brazil.

Gordon and Evans mention the larvæ as found in the stem of wild banana *(Bananeira braba)* in the forest. The species comes extremely close to *occulta*, though there seem to be small differences in the male hypopygium and larva.

MIAMYIA (CLEOBONNEA) ARGENTEOROSTRIS Bonne-Wepster and Bonne

CLEOBONNEA ARGENTEOROSTRIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 167, 1920.
? Miamyia (Cleobonnea) argenteorostris Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Cleobonnea) argenteorostris Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 95, 1925.

Female—Proboscis moderate, stout, swollen at tip, dark brown, pale below. Occiput with dark scales, a white border behind the eyes and a white patch on the side below. Prothoracic lobes with dark scales in the middle, white at tip and more broadly so below. Mesonotum with dark bronzy brown scales; pleuræ and coxæ with silvery white scales. Abdomen dark brown dorsally, white ventrally, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection; mid tarsi rather pale white on tip of first, second to fifth joints. Wing-scales broadly ovate, the tips rounded, all dark.

Male—Coloration as in the female. Hypopygium (Plate XI, Fig. 32): Side-piece twice as long as wide. Clasper with three lobes arising from a very short stem, mid lobe somewhat larger than the lateral ones, expanded subapically and with slender tip, cleft mesially for half its length; apical lobe trigonate with two notches; basal lobe elliptical with pointed tip. Tenth sternites broad, with curved toothed tip. Ninth tergites with two short spines on each side.

Larva (Plate XI, Fig. 32)—Head rounded; antennæ small, a seta outwardly. Head-hairs in twos; anteantennal tuft multiple. Comb of the eigthh segment of eighteen spines in a single row. Air-tube straight, smooth, slightly tapered, five times as long as wide; a false pecten along the posterior margin except at base and tip; a tuft near base posteriorly, followed by two smaller ones; four small tufts on the dorsal aspect. Anal segment as wide as long, the plate reaching well down the sides. Dorsal tuft in four on each side; lateral tuft in three, not as long as the dorsal one; subventral tuft in six on each side, short. Anal gills about as long as the segment, bluntly pointed.

Surinam.

Dr. and Mrs. Bonne found the larvæ in the water in the leaf-bases of Bromeliaceæ.

MIAMYIA (?CLEOBONNEA) ROUCOUYANA (Bonne-Wepster and Bonne)

DENDROMYIA ROUCOUYANA Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 166, 1920.
Phoniomyia clasoleuca Dyar (not Dyar and Knab), Ins. Ins. Mens., xii, 109, 1924.
? Miamyia (Dodecamyia) roucouyana Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Dendromyia) roucouyana Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 110, 1925.

Female—Proboscis rather long, not as long as the abdomen, black with bronzy reflection, a white line beneath. Occiput with black scales with blue reflection, a white line behind the eyes, narrow above, joining a patch on the side below. Prothoracic lobes dark, with strong blue luster, a few white scales at base and tip. Mesonotum dark brown with blue and bronzy reflections; pleuræ and coxæ with white scales. Abdomen black above, with blue reflection, white below, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection; mid tarsi with second to fifth joints silvery white beneath. Wing-scales broad with truncate tips, all dark.

Male—Unknown.

Larva (Plate XIII, Fig. 40)—Head round; antennæ rather long, slender, a single hair beyond the middle. Head-hairs all single, the anteantennal tuft multiple. Lateral comb of the eighth segment of twelve long spines in

a straight row. Air-tube about five times as long as wide; a long four-haired tuft near base, followed by a long open pecten nearly to tip, then a single hair; several long single hairs scattered over the dorsal surface. Anal segment rather longer than wide, the plate reaching well down the sides. Dorsal tuft of two long hairs on each side; lateral tuft in three, subventral tuft small, of six hairs on each side.

Surinam.

The larvæ were found in Bromeliaceæ. This species comes very close to *argenteorostris*. The male is unknown, but the larval characters are apparently specific.

Subgenus SHROPSHIREA Dyar

MIAMYIA (SHROPSHIREA) YPSIPOLA Dyar

WYEOMYIA (SHROPSHIREA) YPSIPOLA Dyar, Ins. Ins. Mens., x, 97, 1922.
Wyeomyia (Shropshirea) ypsipola Dyar, Ins. Ins. Mens., xi, 169, 1923.
Miamyia (Shropshirea) ypsipola Dyar and Shannon, Jour. Wash. Acad. Sci., xiv, 481, 1924.
Wyeomyia (Shropshirea) ypsipola Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 91, 1925.
Miamyia (Shropshirea) ypsipola Dyar, Ins. Ins. Mens., xiii, 117, 1925.

Female—Proboscis rather long but stout, black. Occiput with black scales with blue reflection, a white border to the eyes joining a spot below. Prothoracic lobes dark violaceous. Mesonotum with dark brown scales with bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, whitish below, colors separated on the sides in a straight line; the white venter is invaded by blackish triangularly on the segments posteriorly, most so on the last segments. Legs brown, with bronzy reflection; mid tarsi with second joint except at base, third to fifth silvery white on the outer side. Wing-scales broadly ovate, the tips slightly truncate, all dark.

Male—Coloration of the female. Hypopygium (Plate XI, Fig. 34): Side-piece as wide as long, the tip rounded; a tuft of hair before tip. Clasper broadly inserted, broad at base, irregularly narrowing outwardly; a small basal branch with finger-shaped tip and spine and a slender forked branch, also basal. Tenth sternites large, broad, ending in an infuscated point with seta below. Ninth tergites obsolete, represented by six small weak setæ. No bridge. The mesosome has two pairs of slender curved appendages and additional finger-shaped process at base.

Larva—Head rounded, conical, as wide as long, flat behind; antennæ small, slender, uniform, with a small single hair at outer fourth. Head-hairs small, single. Maxillæ large, conical, with a long terminal horn and four or five rather long side-teeth, the basal ones smaller; a tubercle at outer third. Lateral comb of the eighth segment of four or more large teeth above, with a patch of smaller ones below. Air-tube about four times as long as wide, strongly tapered; six long, stout spines on dorsal aspect, arranged in two rows of three each, often somewhat irregularly placed; ventral side with a pair of two-haired tufts toward base, a row of false pecten teeth on the outer half of the tube except toward apex, a pair of single hairs at outer fourth and another smaller toward tip. Anal segment rather longer than wide, with weakly chitinized dorsal plate; dorsal tuft of two tufts on each side; lateral hair long, double; subventral tuft rather short, in about six on each side. Anal gills as long as the segment, bluntly ended.

Panama.

The larvæ occur in the fluid between the leaves of Araceæ. Dr. D. P. Curry made the following notes: "July 30, 1927, between the leaves of *Xanthosoma* on the Sabañas road near Panama (Rio Matias Hernandez)."

These larvæ so much resemble those of *Dendromyia (Melanolepis) prolepidis*, with which they occur in the same plants, that the two can be distinguished only by the most minor characters, the present larva being somewhat less heavily haired on air-tube and anal segment.

MIAMYIA (SHROPSHIREA) PAMPITHES Dyar and Núñez Tovar

MIAMYIA (SHROPSHIREA) PAMPITHES Dyar and Núñez Tovar, new species (here published).

Female—Unknown.

Male—Proboscis moderate, slightly enlarged at tip, black with blue reflection. Clypeus small, pale, pruinose, nude. Occiput black with blue reflection, a narrow, uniform white border behind the eyes, joining a white patch on the side below; prothoracic lobes dark, of the color of the mesonotum, white scaled below. Mesonotum black with bronzy and blue reflection; pleuræ and coxæ pale yellow, silvery white scaled. Abdomen black above, pale yellow below, the colors separated on the sides in a straight line. Legs black with blue reflection, the femora yellowish white below. Wing-scales rather broadly ovate, no narrow ones. Hypopygium: Side-piece rather broadly ovate at base, tapering and curved at tip; three approximate setæ within; an angular plate with projecting point has fine setæ and two longer ones on its margin. Clasper broadly attached and divided to base; main arm ligulate, a little irregular, with a row of setæ at middle and many fine ones at tip; two side-arms, not as long as the main arm, broadly elliptical at base, tapering to a fine point. Tenth sternites broadly triangular, thin, except one narrow chitinized black margin. Ninth tergites forming an angular bridge with two or three long, thick spines on each angle, but the structure weakly colored; mesosome stout, thick, composed of several short plates.

Larva—Unknown.

Venezuela (Rancho Grande).

Bred by Dr. M. Núñez Tovar from "saxicolous Bromeliaceæ"; but as *ypsipola* of Panama, to which this is allied, occurs in Araceæ, and the present specimen was associated with a species of *Dendromyia (Melanolepis)*, a subgenus also addicted to Araceæ, it seems probable that an error of notation occurred, and that the true host-plant of *pampithes* is some species of Araceæ. Moreover, another sending from Dr. Núñez, bred from saxicolous Bromeliaceæ, comprised *Culex (Microculex) imitator* Theob. and *inimitabilis* D. and K., *Wyeomyia (Wyeomyia) camptocomma* Dyar, the true fauna associated with these plants.

MIAMYIA (SHROPSHIREA) HEMISAGNOSTA (Dyar and Knab)

WYEOMYIA HEMISAGNOSTA Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 230, 1906 (larva only).

WYEOMYIA GYNÆCOPUS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 66, 1908.

WYEOMYIA BARIA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 69, 1908.

Wyeomyia gynæcopus, baria, and *hemisagnosta* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 107, 154, and 159, 1915.

Wyeomyia gynæcopus, baria, and *hemisagnosta* Dyar, Ins. Ins. Mens., vii, 128 and 131, 1919.

? Prosopolepsis (Eunicemyia) hemisagnosta Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia gynæcopus and *hemisagnosta* Dyar, Ins. Ins. Mens., xii, 103, 1924.
Wyeomyia (Wyeomyia) gynæcopus and *baria* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 117 and 124, 1925.
Miamyia (Shropshirea) hemisagnosta Dyar, Ins. Ins. Mens., xiii, 117, 1925.

Female—Proboscis moderate, stout, swollen at tip, bronzy black, paler below. Occiput black with blue reflection, a white border behind the eyes, forming a small vertical spot and patch on side below. Prothoracic lobes with dark brown scales with blue reflection, white on base and narrowly at tip. Mesonotum with dark brown scales with slight bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, white below, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection; hind tarsi with the fourth and fifth joints white below, except the tip of the fourth. Wing-scales broad, the tips truncate, but some long, narrow ones from the base of the second vein in the cell, all dark.

Male—Unknown.

Larva (Plate XI, Fig. 34N)—Head rounded, as wide as long; antennæ small and slender, a minute hair at outer fourth. Head-hairs single and slight. Lateral comb of the eighth segment a long band of spines, single above, double and smaller below. Air-tube slightly tapered, three times as long as wide, with two rows of sparse single hairs, the basal one double. Anal segment as long as wide, dorsal plate reaching well down the sides; dorsal tuft of five long hairs on each side; lateral tuft double, long; subventral tuft in six on each side, short. Anal gills as long as the segment, stout, rounded.

Costa Rica and Salvador.

The larvæ were found in water in cocoanut-husks.

MIAMYIA (SHROPSHIREA) FLORESTAN (Dyar)

WYEOMYIA (TECHNICHOMYIA) FLORESTAN Dyar, Ins. Ins. Mens., xiii, 20, 1925.
Miamyia (Shropshirea) florestan Dyar, Ins. Ins. Mens., xiii, 118, 1925.

Female—Proboscis moderate, swollen at tip, black with bronzy reflection. Occiput with black scales with blue reflection; a white border behind the eyes, widening to a patch below. Prothoracic lobes with black scales with blue reflection, white-tipped below. Mesonotum with dark brown scales with slight bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, white below, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection. Wing-scales broad, the tips truncate; some ligulate ones in the cell.

Male—Coloration as in the female. Hypopygium (Plate XII, Fig. 35): Side-piece cylindrical, flattened, the tip sharply narrowed. Three approximate setæ in an infuscation below middle. A rounded projection at insertion of clasper bearing a row of hairs. Clasper with a short, constricted stem, apex rounded with a row of hairs slightly expanded on one side; on the other a recurved arm bearing long hairs at tip which recurve in U-shape. Tenth sternites heavily chitinized on one margin, the tips with several divaricate and separated teeth. Ninth tergites nearly obsolete, a small band of

chitin with four weak hairs in a dense row on each side. Mesosome of two pairs of appendages of nearly equal size, pointed at tip.

Larva—Unknown.

Panama (Fort Clayton, Pacific Coast).

Known only from captured specimens.

MIAMYIA (————————) PETROCCHIÆ Shannon and Del Ponte

MIAMYIA PETROCCHIÆ Shannon and Del Ponte, new species (here published).

"*Female*—Proboscis moderate, slightly swollen at tip, black with slight violet reflection. Palpi short, black. Clypeus nude, strongly white-pruinose. Occiput black or bright coppery red according to the light. Prothoracic lobes bright purple-coppery. Mesonotum with metallic green scales; pleuræ and coxæ with silvery white scales. Abdomen black above with blue reflection, silvery white below, the colors separated on the sides in an irregular line, the white roundedly excavating the black broadly centrally on the segments. Legs black with violet reflection, the femora white below; mid tarsi with outer half of second, third and fourth joints silvery white below. Wing-scales broad, black."—Shannon and Del Ponte.

Male—Unknown.

Larva—Unknown.

Argentina.

Several specimens were taken in the Provinces of Jujuy and Tucumán in the months of April and May 1927 (R. C. Shannon). A type has been deposited in the U. S. National Museum, Vipos, Tucumán, May 3, 1927 (R. C. Shannon), flying in dry forested regions in the mountains.

Genus MENOLEPIS Lutz

MENOLEPIS Lutz in Bourroul, Mosq. do Braz., 67, 1904.
Menolepis Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Menolepis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 77, 1925.

Pronotal setæ present; prothoracic lobes widely separated; prealar setæ present; spiracular setæ present; lower sternopleural setæ extending above the upper margin of lateral metasternal sclerite; wing-scales narrow.

But one species is known in this genus, without male or larva. By the shape of the wing-scales it is allied to *Wyeomyia,* but by the pleural setæ more like *Dendromyia.*

MENOLEPIS LEUCOSTIGMA Lutz

MENOLEPIS LEUCOSTIGMA Lutz in Bourroul, Mosq. do Bras., 67, 1904.
Wyeomyia leucostigma Theobald, Mon. Culic, iv, 597, 1907.
Menolepsis leucostigma Peryassú, Os Culic. do Braz., 284, 1908.
Menolepis leucostigma Theobald, Mon. Culic., iv, 581, 1910.
Menolepis leucostigma Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 247, 1911.
LIMATUS LEONTINIÆ Brèthes, Bol. Inst. Ent. y Pat. Veg., i, 41, 1912.
Menolepis leucostigma Dyar, Ins. Ins. Mens., vii, 138, 1919.
Menolepis leucostigma Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Menolepis) leucostigma Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 77, 1925.

Female—Proboscis moderate, stout, slightly swollen at tip, black with bronzy reflection. Occiput with black scales with bronzy and blue reflection; a minute white spot at vertex and large one on lower part of the side. Prothoracic lobes with shining violet scales with trace of bronzy reflection. Mesonotum with dark brown scales with bronzy reflection. Pleuræ and coxæ with silvery white scales. Postnotum largely covered with small white scales. Abdomen black above, yellowish white below, the colors separated on the sides in a zigzag line, the white incising the dark color anteriorly on the segments. Legs dark brown with strong bronzy luster. Wings with the outstanding scales linear, broader and denser toward the tips of second to fourth veins, all dark.

Male—Similar to the female. The hypopygium has not been described.

Larva—Undescribed.

Brazil, Argentina.

The larvæ occur in the water in the bases of the leaves of cat-tails *(Typha)*. Mr. R. C. Shannon bred specimens from this source at Ledesma, Jujuy, Argentina, but, unfortunately, only females emerged.

Genus DENDROMYIA Theobald

Dendromyia Theobald, Mon. Culic., iii, 313, 1903.
Prosopolepis Lutz, Imp. Med., 312, 1905.
Dinomyia Dyar, Ins. Ins. Mens., vii, 117, 1919.
Triamyia Dyar, Ins. Ins. Mens., vii, 120, 1919.
Heliconiamyia Dyar, Ins Ins. Mens., vii, 123, 1919.
Decamyia Dyar, Ins. Ins. Mens., vii, 135, 1919.
Hystatomyia Dyar, Ins. Ins. Mens., vii, 140, 1919.
Calladimyia Dyar, Ins. Ins. Mens., vii, 151, 1919.
Prosopolepis Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 481, 1924.
Eunicemyia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Janicemyia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.

A genus of small sabethid mosquitoes allied to *Wyeomyia*, but somewhat less specialized. Some of the species have been observed biting cold-blooded animals, such as lizards, and it is possible that many of the genus have this habit. Some examples of biting warm-blooded animals are known to me. The larvæ live in collections of water in plant tissue, some in tree-holes and husks, but more in Bromeliaceæ, Heliconias, Araceæ, etc., according to the species. The adults are rare and inconspicuous, although in Panama, in shaded places, *melanocephala* sometimes attracts attention. Its favorite host plants are cultivated about houses.

No pronotal setæ; prealar setæ present, spiracular setæ present; lower sternopleural setæ extending as far as the upper margin of the lateral metasternal sclerite; wing-scales broad.

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   Tarsi all dark 3
3. Larger; pleuræ and venter of abdomen contrastingly pale; prothoracic lobes with trace of blue; white eye-margins not reaching vertex,
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Larger; pleuræ and venter of abdomen not constrastingly pale; a small white spot at vertex between the eyes, separated from the white margin below, *favor* Dyar and Núñez Tovar

Smaller; pleuræ and venter darker; lobes without blue; white eye-margins reaching vertex . . . . . *prolepidis* Dyar and Knab

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Mid tarsi white-marked 6
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Prothoracic lobes dark like mesonotum . . { ♀ *intonca* Dyar and Knab / ♀ *circumcincta* Dyar and Knab / ♀ *cœnonus* Howard, Dyar, and Knab / ♂ ♀ *felicia* Dyar and Núñez Tovar

6. A pale stripe on vertex of head; prothoracic lobes dark with coppery whitish tips . . . . . { ♂ *lamellata* Bonne-Wepster and Bonne / ♂ *autocratica* Dyar and Knab

No pale stripe on head; prothoracic lobes dark like mesonotum { ♂ *intonca* Dyar and Knab / ♂ *circumcincta* Dyar and Knab / ♂ *cœnonus* Howard, Dyar, and Knab

7. Prothoracic lobes coppery blue . . . . . { *melanoides* Root / *melanocephala* Dyar and Knab

Prothoracic lobes faintly bluish only 8

8. Clypeus with marginal white scales; mid tarsi marked with white above, { *confusa* Lutz / *flui* Bonne-Wepster and Bonne

Clypeus without scales; mid tarsi white-marked below, { *phroso* Howard, Dyar, and Knab / *chalcocephala* Dyar and Knab

9. White on hind tarsi interrupted 10

White on hind tarsi continuous . . . . . { *pseudopecten* Dyar and Knab / *ulocoma* Theobald / *eloisa* Howard, Dyar, and Knab

10. A coppery spot on vertex of head . . . . . { *personata* Bourroul / *aporonoma* Dyar and Knab

Without such a spot on vertex . . . . { *albosquamata* Bonne-Wepster and Bonne / *clasoleuca* Dyar and Knab

MALE HYPOPYGIUM

1. Clasper much complicated and branched *(Dinomyia)* 2
Clasper not much complicated, not over three-branched 4

2. Clasper without stem, the arms from base . . . . *phroso* Howard, Dyar, and Knab
Clasper with long stem 3

3. Terminal horn followed by fimbriæ; long lateral lobe trigonate with eye-thorn, *mystes* Dyar

Terminal horn not followed by fimbriæ; long lateral lobe rounded, with two horns . . . . . *bourrouli* Peryassú

4. Clasper short-stemmed, the division reaching near base *(Melanolepis)** 5
   Clasper long-stemmed 6
5. Clasper cleft, with one long branch from the base . . . *prolepidis* Dyar and Knab
   Clasper with two branches from the base, one furcate . . . . . *complosa* Dyar
6. Clasper with a short branch near mid stem *(Triamyia)*,
   aporonoma Dyar and Knab
   Clasper with expansions or arms terminal or simple 7
7. Clasper with three distinct arms separated at tip *(Helioconiamyia)*,
   chalcocephala Dyar and Knab
   Clasper with three short arms and capitate tip 8
   Clasper with long stem and expanded irregular tip *(Eunicemyia)*,
   albosquamata Bonne-Wepster and Bonne
   Clasper simple or triangularly expanded at tip 12
8. Three setæ near base of side-piece normal *(Calladimyia)* 9
   Two of these three setæ separated and modified *(Decamyia)* 10
9. Clasper with side-arms, the tip pilose . . . . . *melanocephala* Dyar and Knab
   Side-arms small, absorbed; tip not pilose . . . . . *melanoides* Root
10. Conjoined setæ of side-piece longer than clasper, straight,
    pseudopecten Dyar and Knab
    These setæ shorter, straight, simple . . . . . *eloisa* Howard, Dyar, and Knab
    These setæ doubly spoon-shaped, reaching middle of side-piece,
    felicia Dyar and Núñez Tovar
    These setæ bent at a right angle . . . . . *ulocoma* Theobald
11. Side-piece normal, clasper terminal *(Janicemyia)* . . . *clasoleuca* Dyar and Knab
    Angles of side-piece greatly produced, the clasper subterminal *(Hystatomyia)* 12
12. Side-piece produced, with blade-like spines near tip 13
    Side-piece lengthily produced, without spines 14
13. Tip of side-piece with three coarse setæ and two blades on a pedicel,
    autocratica Dyar and Knab
    Tip of side-piece with three narrow blades; a subapical broad blade, sessile,
    lamellata Bonne-Wepster and Bonne
14. Side-piece with four tufts . . . . . *intonca* Dyar and Knab
    Side-piece with two tufts . . . . . *circumcincta* Dyar and Knab
    Side-piece with one tuft . . . . . *cœnonus* Howard, Dyar, and Knab

The following species are unknown in the male: *Confusa, flui, jocosa, favor, personata,* and *luteoventralis.*

LARVA

1. Maxillæ with long horn and side-teeth 2
   Maxillæ unarmed, setose 3
2. Air-tube with stout hairs dorsally . . . . . *prolepidis* Dyar and Knab
   Without these structures . . . . . *complosa* Dyar
3. Air-tube with false pecten 4
   Air-tube without false pecten 6
4. Tube long and slender; six or more false pecten teeth 5
   Tube moderate; two to four false pecten teeth . { *ulocoma* Theobald / *pseudopecten* Dyar and Knab / *eloisa* Howard, Dyar, and Knab
5. Pecten of six teeth, compressed; lateral comb four rows deep,
   autocratica Dyar and Knab
   Pecten of six teeth, expanded; comb about two rows deep,
   { *circumcincta* Dyar and Knab / *intonca* Dyar and Knab / *cœnonus* Howard, Dyar, and Knab

* A new subgenus, characterized by black scales on the clypeus.

6. Tube without posterior fringe 7
   Tube with weak posterior fringe 9
7. Comb a narrow patch; anal hairs 4 + 3, 2 . . . . . *aporonoma* Dyar and Knab
   Comb a single line; anal hairs 2, 1 . . *albosquamata* Bonne-Wepster and Bonne
   Comb of a row of stout spines, small ones preceding 8
8. Tube short with many double tufts; lateral anal hair double . . . *mystes* Dyar
   Tube longer, the hairs mostly single; lateral anal hair single . . . . *bourrouli* Lutz
9. Comb of eight or nine scales . . . . . { *melanoides* Root / *melanocephala* Dyar and Knab
   Comb-scales a patch 10
10. Tube with weak fringe to the base . . . . . *phroso* Howard, Dyar, and Knab
    Tube with a tuft near base, followed by the fringe, *chalcocephala* Dyar and Knab

The following species are unknown in the larva: *Confusa, flui, jocosa, favor, personata, lamellata, clasoleuca, luteoventralis, felicia.*

Subgenus DINOMYIA Dyar

DENDROMYIA (DINOMYIA) PHROSO (Howard, Dyar, and Knab)

WYEOMYIA PHROSO Howard, Dyar, and Knab, Mosq. No. and Cent. Am., and W. I., iii, 149, 1915.

DINOMYIA PROVIOLANS Dyar, Ins. Ins. Mens., vii, pl. v. fig. 1, 117, 1919.

Wyeomyia (Dinomyia) phroso Dyar, Ins. Ins. Mens., xi, 169, 1923.

Wyeomyia (Dinomyia) phroso Dyar and Shannon, Ins. Ins. Mens., xii, 86, 1924.

Prosopolepis (Dinomyia) phroso Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.

Wyeomyia (Dinomyia) phroso Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 84, 1925.

Prosopolepis (Dinomyia) phroso Dyar, Ins. Ins. Mens., xiii, 121, 1925.

Female—Proboscis short and stout, somewhat enlarged toward tip, bluish black with a line of brassy scales beneath. Occiput with brown scales with blue reflection; a pale border behind the eyes joining a patch on lower part of side. Prothoracic lobes with dark scales with dark blue reflection. Mesonotum with dark brown scales with bronzy and blue reflection; pleuræ and coxæ with white scales. Abdomen black dorsally, white ventrally, the colors separated on the sides in a straight line. Legs black with bronzy reflection; mid tarsi with apex of second joint, third and fourth silvery white on the outer side and more continuously so beneath.

Male—Coloration as in the female. Hypopygium (Plate XIV, Fig. 42): Side-piece broadly elliptical, the tip narrowly drawn out and curved. Three setæ on the inner side not closely approximate. Clasper rather thick, divided into lobes nearly to base; two central lobes erect, one broad and with a fringe of setæ at tip, the other narrow; three arise from a cup-shaped base which is rugose outwardly; a little slender, hooked arm on one side; across the middle a transverse quadrate membrane serrate along its upper edge and with a stout spine in the angle. Tenth sternites drawn out and angled, triangular, chitinized along the back and outer edges with a horn at the angle, ending in a single point. Ninth tergites a pair of small lumps, each with about four long, delicate spines which are widened before tip, sharp and curved terminally. Mesosome swollen, constricted, and enlarged into a rounded quadrate head which ends in a double point. Second pair of plates small, also somewhat swollen.

Larva (Plate XIV, Fig. 42)—Head round, frontal spines long and stout; head-hairs all single; anteantennal tuft four-haired. Antenna small, a

single hair beyond the middle. Lateral comb of the eighth segment of about thirty scales in a patch. Air-tube tapered, about two and a half times as long as wide; a wide posterior band of fringe hairs about four rows wide from near base to near apex; on posterior aspect a single hair, and three more toward tip. Anal segment as long as wide, the plate reaching well down the sides. Dorsal tuft of six on each side; lateral tuft two-haired and long; subventral tufts in fives, rather long. Anal gills large and bladder-like.

Panama.

The natural habitat of the larva is unknown, but may probably be in Bromeliaceæ.

DENDROMYIA (DINOMYIA) MYSTES (Dyar)

WYEOMYIA MYSTES Dyar, Ins. Ins. Mens., xii, 92, 1924.

Prosopolepis (Dinomyia) mystes Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.

Wyeomyia (Dinomyia) mystes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 84, 1925.

Female—Proboscis moderate, stout, swollen at tip, black with bronzy reflection. Occiput black with blue reflection, a white patch at the side below. A narrow white border behind the eyes. Prothoracic lobes with dark violet-blue scales. Mesonotum with dark brown scales with blue and brassy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above with blue reflection, grayish white below, the colors separated on the sides in a straight line. Legs dark brown with strong bronzy reflection. Wing-scales broad, with rounded apices, broadly ligulate on the upper fork of fifth vein.

Male—Coloration as in the female. Hypopygium (Plate XIV, Fig. 43): Side-piece conical, broad, tapering to the tip and ending in a point. Two setæ near the middle, not closely placed. Clasper inserted beside the tip of side-piece, a long, rather thick, and somewhat irregular stem triangularly widened terminally and with three complex lobes. Short terminal lobe triangular, with a thorn at the outer end; a row of long cilia across the end, those within the main lobe stouter. Main lobe inflated and with a large trigonate expansion outwardly, on the margin of which are fine fimbriæ and at the lower angle a cup-shaped thorn. Third lobe arising beyond the base of the main lobe, cup-shaped, fimbriate, with a pointed caplike projection over it. Tenth sternites broadly triangular, somewhat chitinized all over, the inner margin strongly but narrowly so; two small teeth at tip. Ninth tergites triangular, produced but membranous, each with two long spines. Mesosome of two truncate appendages, small and inconspicuous.

Larva (Plate XIV, Fig. 43)—Head rounded, the antennæ small, with a single hair outwardly; upper head-hair double, lower single, the four hairs along the anterior margin single. Lateral comb of the eighth segment of about eight large spines preceded by a patch of very small ones. Air-tube short, about two and a half times as long as wide with many short two- and three-haired tufts over dorsal surface and sides. Ventral hairs toward tip short and spiny, resembling false pecten; a long two-haired tuft ventrally and basal third. Anal segment as long as wide, the plate reaching well down the sides. Dorsal tuft of three hairs on each side (2+1); lateral hair

double, long; subventral tuft in seven, short. Anal gills much longer than the segment, broad with rounding tips.

Brazil. Magé, Brazil, May and June 1925 (F. M. Root).

Bred from water in the leaves of aroids.

DENDROMYIA (DINOMYIA) BOURROULI Peryassú

DENDROMYIA BOURROULI Peryassú, Os Culic. do Braz., 307, 1908.
Dendromyia bourrouli Theobald, Mon. Culic., v, 593, 1910.
Dendromyia bourrouli Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 258, 1911.

Female—Proboscis moderate, stout, swollen at tip, black with bronzy reflection. Occiput black with blue reflection, a white patch at the side below; a narrow white border behind the eyes. Prothoracic lobes with dark violet-blue scales. Mesonotum with dark brown scales with blue and brassy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, with blue reflection, grayish white below, the colors separated on the sides in a straight line. Legs dark brown with strong bronzy reflection. Wing-scales rather broad, with rounded apices, broadly ligulate on upper fork of fifth vein.

Male—Coloration as in the female. Hypopygium (Plate XXIII, Fig. 72): Side-piece broadly conical, narrow at tip, ending in a projecting point. Two hairs near the middle, not closely approximated. Clasper with a rather long stout, somewhat irregular stem, the tip divided into three complicated lobes. Terminal part broadly triangular with a thorn on the outer corner, following it a little lump on the disk but no cilia; inner angle with short spines. Main lobe inflated, contracted, the tip bulbous, with two long horns from the under side. A rather long sac-shaped curved arm from its lower middle, truncate at the tip and lined with long cilia, which are somewhat recurved. Tenth sternites triangular, one margin narrowly chitinized, the other slightly so; tip bulbous and ending in a point. Ninth tergites slight projections from a strong bridge, each with two stout spines. Mesosome of three pairs of thin appendages, the outer thick and curved; second one-third their length; third pair minute.

Larva (Plate XXIII, Fig. 72)—Head rounded; antennæ small, with a single hair outwardly. Head-hairs, upper and lower double; the four above anterior margin single. Lateral comb of the eighth segment of ten long, sharp spines, longest centrally, preceded by a patch of minute scales. Air-tube four times as long as wide, with many well-distributed short single hairs, a few toward apex in twos or threes; a two-haired tuft at basal third. Anal segment as wide as long, dorsal plate reaching well down the sides; dorsal tuft in twos (1+1) on each side; lateral hair single, long; subventral tuft in eight on each side, short.

Brazil. Magé, Brazil, June 21, 1925 (F. M. Root); Porto das Caixas, Brazil, May 29, 1925 (F. M. Root); Sant' Anna, Brazil, February 24, 1925 (F. M. Root).

Bred from water in the leaf-bases of Bromeliaceæ.

Subgenus MELANOLEPIS Dyar

DENDROMYIA (MELANOLEPIS) JOCOSA (Dyar and Knab)

PROSOPOLEPIS JOCOSA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 64, 1908.
Prosopolepis jocosa Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 161, 1915.

Prosopolepis jocosa Dyar, Ins. Ins. Mens., vii, 142, 1919.
Wyeomyia (Prosopolepis) jocosa Dyar, Ins. Ins. Mens., xi, 171, 1923.
Prosopolepis (Prosopolepis) jocosa Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Prosopolepis (Prosopolepis) jocosa Dyar, Ins. Ins. Mens., xiii, 125, 1925.
Prosopolepis jocosa Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 137, 1925.

Female—Proboscis short and stout, black with slight bronzy reflection. Clypeus with dense black scales. Occiput with black scales, a narrow white border behind the eyes, running to a patch at lower part of side. Prothoracic lobes with dark blue scales. Mesonotum with dark brown scales with bluish luster; pleuræ and coxæ with silvery white scales. Abdomen black above with bluish reflection, yellowish white below, the colors separated on the sides in a straight line. Legs black with strong bronzy reflection. Wing-scales broadly ovate with rounded tips, all dark.

Male—Unknown.

Larva—Unknown.

Panama (Porto Bello).

Known only in a single captured female. This is much larger than any *prolepidis* before me, though very similarly colored. It is nearer to *complosa,* although I can detect no trace of white on the mid tarsi.

DENDROMYIA (MELANOLEPIS) FAVOR Dyar and Núñez Tovar

Dendromyia (Melanolepis) favor Dyar and Núñez Tovar, new species (here published).

Female—Proboscis stout, rather short, swollen at tip, black with blue reflection; clypeus with small dense black scales, slightly erected. Palpi small, black; occiput black, a white patch low on the side, which sends up a short eye-margin; a small white vertical spot between the eyes, the scales of vertex behind the spot taking more or less of white reflection. Prothoracic lobes and mesonotum black with slight bronzy and bluish reflections; pleuræ and coxæ with pale yellow scales with silvery luster. Abdomen black above, with blue reflection, yellowish silvery below, the colors separated on the sides in a straight line. Legs black with blue reflection, femora rather narrowly white below. Wing-scales dense, rather broadly ovate.

Male—Unknown.

Larva—Unknown.

Venezuela (Rancho Grande).

Dr. M. Núñez Tovar bred the single female adult from a culture labeled "saxicolous Bromelias"; but probably was some species of Araceæ as explained under *Miamyia (Shropshirea) pampithes.* Of the size of, and obviously allied to, *jocosa* of Panama, perhaps not distinct from it.

DENDROMYIA (MELANOLEPIS) PROLEPIDIS (Dyar and Knab)

Wyeomyia prolepidis Dyar and Knab, Ins. Ins. Mens., vii, 1, 1919.
Prosopolepis prolepidis Dyar, Ins. Ins. Mens., vii, 142, 1919.
Prosopolepis prolepidis Dyar and Ludlow, the Mil. Surg., xlviii, 677, 1921.
Prosopolepis prolepidis Dyar, Ins. Ins. Mens., ix, 115, Pl. II, fig. 5, 1921.
Wyeomyia (Prosopolepis) prolepidis Dyar, Ins. Ins. Mens., xi, 171, 1923.
Prosopolepis (Prosopolepis) prolepidis Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.

Prosopolepis (Prosopolepis) prolepidis Dyar, Ins. Ins. Mens., xiii, 126, 1925.
Prosopolepis prolepidis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 137, 1925.

Female—Proboscis short and stout, black with slight bronzy reflection. Clypeus with flat black scales. Occiput with black scales with blue reflection, narrow white border behind the eyes, joining a spot at the side below. Prothoracic lobes with black scales with dark blue reflection. Mesonotum with dark brown scales with bronzy and blue reflections; pleuræ and coxæ with silvery white scales. Abdomen black above with slight bronzy and blue reflection, yellowish white below, the colors separated on the sides in a straight line. Legs black with bronzy and blue luster in certain lights. Wing-scales broadly ovate, dense, all dark.

Male—Coloration as in the female. Hypopygium (Plate XV, Fig. 44): Side-piece thin, moderate, conically tapered, the tip narrow; a row of small setæ along one side. Clasper broad, cleft nearly to base into two arms, one narrow, the other broad, the broad arm again cleft on its inner side, forming a very small lateral arm. Tenth sternites broad, large but membranous, narrowly thickened on one margin, the tip with two teeth. Ninth tergites on a narrow band of chitin, each with four long spines which are enlarged toward tip and pointed, the two rows of four rather closely approximated.

Larva (Plate XV, Fig. 44)—Head rounded, wider than long; antennæ moderate, uniform, a small hair beyond the middle. Head-hairs single. Mandible conical, a long horn at tip and several short teeth on the inner side. Lateral comb of the eighth segment of twelve long spines, the upper six large and single, the lower ones smaller and in two rows. Air-tube about three times as long as wide, regularly tapered. Dorsal surface with six very large single spines in two rows of three each; ventrally a three-haired tuft at basal third; a single hair at apical third; a medio-ventral row of short, irregular, appressed false pecten-teeth on outer half of tube. Anal segment as long as wide, the plate reaching well down the sides. Dorsal tuft with six hairs on each side, one of them short; lateral tuft of two long hairs; subventral tuft in five, weak, rather long. Anal gills small, rounded, as long as the segment.

Panama.

The larvæ occur in the fluid between the leaves of some species of Araceæ, occasionally also in *Colocasia* (elephant's ear).

DENDROMYIA (MELANOLEPIS) COMPLOSA Dyar

Dendromyia (Melanolepis) complosa Dyar, new species (here published).

Female—Proboscis short and stout, black with slight bronzy reflection. Clypeus with flat black scales. Occiput with black scales with blue reflection, a narrow white border behind the eyes, joining a spot at the side below. Prothoracic lobes with black scales with dark blue reflection. Mesonotum with dark brown scales with bronzy and blue reflections; pleuræ and coxæ with silvery white scales. Abdomen black above, with slight bronzy and blue reflection, yellowish white below, the colors separated on the sides in a straight line. Legs black with bronzy and blue luster in certain lights. Mid tarsi with second to fifth joints with a strong white reflection without. The tips of the joints appear dark. In one specimen the white shows only on the fifth joint. Wing-scales broadly ovate, dense, all dark.

Male—Coloration as in the female. The white on the mid tarsi is more

distinct. Hypopygium (Plate XV, Fig. 45): Side-piece weak, broadly conical, squarely and widely ended. Three setæ in a row on the outside near middle. Clasper divided to base; the main stem lies along tip of side-piece, curved, broadened and strongly setose at tip; a slender arm opposite it; between them another slender arm, furcate outwardly, one of its divisions widened. Tenth sternites very large, broad, chitinized on one margin, the tip with a single strong tooth. Ninth tergites two rows of five weak but rather long hairs, separated by a bridge. Mesosome two pairs of short finger-shaped processes. A long tuft of hair from an angle of the eighth segment exceeds the hypopygium.

Larva (Plate XV, Fig. 45)—Head rounded, as wide as long; antennæ moderate, slender, a single hair beyond the middle. Head-hairs single, short, the anteantennal hair long. Maxillæ conical, a long horn at tip and seven teeth on the inner margin. Lateral comb of the eighth segment on many spines, the upper ones large, the lower ones smaller, in single row above but centrally more or less doubled. Air-tube five times as long as wide, a little flared at base, otherwise only slightly tapering. A three-haired tuft on basal third; a single hair outwardly, these paired on the posterior surface; a medio-ventral row of coarse, irregular, appressed false pecten on the outer two-thirds of tube. Anal segment as wide as long, the plate reaching well down the sides. Dorsal tuft of five hairs (3 + 2) on each side; lateral tuft double, long; subventral tuft small, of four hairs on each side. Anal gills long, twice as long as the segment, the tips tapered.

Panama. San Juan de Pequini, Panama, larvæ in skunk cabbage, November 11, 1926 (D. P. Curry). The plant was not accurately determined, but belongs to the Araceæ. Also bred by Dr. F. M. Root from an aroid in Venezuela.

Subgenus TRIAMYIA Dyar

DENDROMYIA (TRIAMYIA) APORONOMA (Dyar and Knab)

WYEOMYIA APORONOMA Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 230, 1906.
Wyeomyia aporonoma Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 73, 1915.
Triamyia aporonoma Dyar, Ins. Ins. Mens., vii, 120, 1919.
Wyeomyia (Triamyia) aporonoma Dyar, Ins. Ins. Mens., xi, 169, 1923.
Prosopolepis (Triamyia) aporonoma Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Triamyia) aporonoma Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 128, 1925.
Prosopolepis (Triamyia) aporonoma Dyar, Ins. Ins. Mens., xiii, 122, 1925.

Female—Proboscis moderate, the tip somewhat expanded, bronzy black, whitish beneath nearly to tip. Occiput with black scales with blue reflection; a small coppery metallic spot at vertex; a large white patch at lower part of side. Prothoracic lobes coppery golden with violaceous reflection. Mesonotum with dark brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally, yellowish white ventrally, the colors separated on the sides in a straight line. Legs black with bronzy reflection; hind tarsi with basal three-fifths of fourth and all of fifth joints white beneath. Wings with scales broadly ovate, dense, all dark.

Male—Coloration is in the female. The mid legs have a silvery luster below. Hypopygium (Plate XV, Fig. 46): Side-piece long, slender, irregu-

larly cylindrical, the tip somewhat narrowed and curved over at right angles. Three approximate setæ before the middle. Clasper long, slender, curved; a small simple branch at basal third; beyond this a triangular widening with a little tooth on the angle; from the tip is reversed a slender arm sharply V-shaped. Tenth sternites large, broad, one margin narrowly chitinized, tips finely dentate. Ninth tergites a group of four weak hairs on either side of a narrow, weak band of chitin. Mesosome of two pairs of equal appendages, the outer with a point and subterminal lump. An angle of the eighth segment bears a large area of rather fine long hairs.

Larva (Plate XV, Fig. 46)—Head rounded; antennæ moderate, smooth. Head-hairs single, the anteantennal tuft in three. Lateral comb of the eighth segment a rather long band of spines, single above, but widening to two or three deep below, the lower ones smaller. Air-tube slender, slightly tapered outwardly, with single scattered hairs. Anal segment as long as wide, dorsal plate reaching well down the sides. Dorsal tuft of seven (4 + 3) hairs on each side; lateral tuft double, long; subventral tuft small, in fives on each side. Anal gills broader than the segment, broadly rounded.

Salvador, Costa Rica, Panama, Venezuela, British Guiana, Surinam.

The larvæ live in tree-holes and nut-husks holding water, usually of a foul nature; bred from bamboo in Venezuela by Dr. M. Núñez Tovar.

DENDROMYIA (TRIAMYIA) PERSONATA Bourroul

DENDROMYIA PERSONATA Bourroul, Mosq. do Bras. 22, 49, 68, 1904.
Dendromyia personata Theobald, Mon. Culic., iv, 613, 1907.
Dendromyia personata Peryassú, Os Culic. do Braz., 297, fig. 54, 1908.
Dendromyia personata Theobald, Mon. Culic., v, 592, 1910.
Dendromyia personata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 259, 1911.
Triamyia personata Dyar, Ins. Ins. Mens., vii, 121, 1919.
Triamyia personata Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 11, 1921.
Prosopolepis (Triamyia) personata Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Triamyia) personata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 131, 1925.

Female—Proboscis moderate, swollen at tip, bronzy black, a white line below up to the swelling. Occiput with black scales, a small coppery spot at vertex; a white spot on lower part of side. Prothoracic lobes coppery with violet reflection. Mesonotum with dark brown scales; pleuræ and coxæ with white scales. Abdomen black above, yellowish white below, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection; hind tarsi white below on the fourth and fifth joints except tip of fourth. Wing-scales broadly ovate, dense, all dark.

Male—No specimen is before me, but apparently it does not differ in coloration from the female. The Bonnes describe the hypopygium as follows: Side-piece moderate, attenuated at apex; insertion of clasper apical. On the side-piece a long ridge of numerous long, wavy hairs. Clasper slender, long, a triangular widening with a flattened spine at one of its angles; a slender branch near the base. Tenth sternites broad, inner edge thickened, curving at tip and ending in a few teeth; moderately long and slender hairs present on one margin. Ninth tergites low, each bearing three or four small

hairs. Mesosome forming a basal cone. Angles of eighth segment ("basal lobes") setose.

Larva—Figured by Peryassú, but his figure gives only the gross appearance.

Brazil.

Very close to *apronoma*, differing apparently in the hypopygial structures. According to description, there is a hair-fringe on side-pieces and tenth sternites.

Subgenus HELICONIAMYIA Dyar

DENDROMYIA (HELICONIAMYIA) CHALCOCEPHALA (Dyar and Knab)

WYEOMYIA CHALCOCEPHALA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 140, 1906.
Wyeomyia chalcocephala Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 145, 1915.
Heliconiamyia chalcocephala Dyar, Ins. Ins. Mens., vii, 123, 1919.
Wyeomyia (Heliconiamyia) chalcocephala Dyar, Ins. Ins. Mens., xi, 65, 1923.
Wyeomyia (Heliconiamyia) chalcocephala Dyar and Shannon, Ins. Ins. Mens., xii, 85, 1924.
Prosopolepis (Heliconiamyia) chalcocephala Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Heliconiamyia) chalcocephala Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 85, 1925.
Prosopolepis (Heliconiamyia) chalcocephala Dyar, Ins. Ins. Mens., xiii, 122, 1925.

Female—Proboscis moderate, swollen at tip, black with bronzy reflection, a white line below to the swelling. Occiput black-scaled with a blue reflection; a narrow white border behind the eyes, joining a patch on the side below. Prothoracic lobes black-scaled, slightly blue-tinted. Mesonotum with dark brown scales with bronzy reflection; pleuræ and coxæ with white scales. Abdomen black above, yellowish white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection; hind tarsi with the fourth and fifth joints white below; mid tarsi with tip of second, third to fifth joints brassy white below. Wing-scales rather broadly ovate, dense, all dark.

Male—Coloration as in the female, the white on mid tarsi below more extensive. Hypopygium (Plate XVI, Fig. 47): Side-piece stoutly conical, tapered to tip, well scaled throughout except on the inner side, and also many long hairs basally without. Clasper with a long, slender stem, three small lobes at its summit; middle lobe elliptical, with a row of nine long, stout spines projecting at right angles; inner lobe slender, finger-shaped; outer lobe broadly elliptical, with a fringe of long setæ on the margin. Tenth sternites broad, one margin chitinized, the tip obscurely dentate. Ninth tergites low, chitinized, each with three stout spines, the pair riding on a rather broad membranous bridge. Mesosome of three pairs of appendages, the outer long, arcuate, pointed at tip, the basal pair small.

Larva (Plate XVI, Fig. 47)—Head rounded, as wide as long; antennæ small, uniform. Head-hairs in threes. Lateral comb of the eighth segment of about fifty scales in a patch. Air-tube very slightly fusiform, three times as long as wide, with single scattered hairs dorsally; ventral aspect with a tuft near base followed by a longer two-haired tuft. A false pecten of five stout spines on the outer half of tube. Anal segment as long as wide, the plate reaching well down the sides. Dorsal tuft of five hairs

(3 + 2) on each side; lateral hair long, single; subventral tuft short, of five on each side. Anal gills long, sac-shaped.

Guatemala and Panama.

The larvæ live in the fluid in the flower-bracts of Heliconias. The species is rare, and has been found only twice.

Subgenus CALLADIMYIA Dyar

DENDROMYIA (CALLADIMYIA) MELANOCEPHALA (Dyar and Knab)

WYEOMYIA MELANOCEPHALA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 140, 1906.
WYEOMYIA CANFIELDI Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 207, 1907.
WYEOMYIA AGNOSTIPS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 211, 1907.
WYEOMYIA PANDORA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 261, 1909.
Wyeomyia agnostips, melanocephala, pandora, and *canfieldi* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 72, 86, 87 and 89, 1915.
WYEOMYIA FAUNA Dyar and Knab, Ins. Ins. Mens., vii, 2, 1919.
Calladimyia melanocephala Dyar, Ins. Ins. Mens., vii, 137, 1919.
WYEOMYIA MODALMA Dyar, Ins. Ins. Mens., x, 97, 1922.
Wyeomyia (Calladimyia) melanocephala Dyar, Ins. Ins. Mens., xi, 169, 1923.
Wyeomyia (———) agnostips Dyar, Ins. Ins. Mens., xi, 169, 1923.
Prosopolepis (Calladimyia) melanocephala Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Calladimyia) melanocephala Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 98, 1925.
PROSOPOLEPIS HEMISIRIS Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 234, 1925.
Prosopolepis (Calladimyia) melanocephala and *Prosopolepis (———) hemisiris* Dyar, Ins. Ins. Mens. xiii, 120 and 122, 1925.

Female—Proboscis moderate, slightly swollen apically, black; a pale line ventrally. Occiput with black scales with bluish reflection, a white patch on lower part of side. Prothoracic lobes bright violaceous to coppery. Mesonotum with dark brown scales with slight blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black above with blue reflection, silvery white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection; mid tarsi with outer half of second, third to fifth joints white on outer side; hind tarsi with tip of third joint, fourth and fifth white all around. Wing-scales broadly ovate, dense, all dark.

Male—Coloration as in the female, the white of mid tarsi more extensive. Hypopygium (Plate XVI, Fig. 48): Side-piece broadly conical at base, tapering to tip; a number of scales outwardly, but more short hairs. Three setæ within, irregularly spaced, unmodified. Clasper with rather stout curved stem; three short lobes at tip, middle one quadrate, setose and spiny; inner one stout, with a spine at tip; outer one narrow, curved. Tenth sternites large, one margin chitinized, ending in a strong tooth. Ninth tergites slightly elevated, riding on a strong transverse bridge, each with two strong spines. Mesosome of two pairs of appendages, the outer pair stout and curved.

Larva (Plate XVI, Fig. 48)—Head rounded, antennæ smooth, uniform; head-hairs single. Comb of the eighth segment about nine separate teeth in a single row. Air-tube straight, slightly tapered, about six times as long as wide; a row of single hairs on dorsal aspect, a few on posterior aspect; a dense fringe of fine, long hairs along ventral line nearly to tip. Anal segment longer than wide, dorsal plate reaching well down the sides. Dorsal tuft of three hairs on each side; lateral hair single, long; subventral tuft of

two long hairs on each side, attached to the lower angle of the dorsal plate. Anal gills twice as long as the segment, rounded.

Panama, Venezuela, British Guiana, and Surinam. Maracay, Aragua, Venezuela, October 10, 1926 (M. Núñez Tovar).

The larvæ live in the fluid in the leaf-axils of *Colocasia*, dasheen, and similar plants. The adult is occasionally not uncommon about plantations and often approaches to bite by day in shaded places.

Prosopolepis hemisiris Dyar and Shannon was described from a specimen which had lost the hind tarsi, but otherwise it agrees well with the species.

DENDROMYIA (CALLADIMYIA) MELANOIDES Root

DENDROMYIA (CALLADIMYIA) MELANOIDES Root, new species (here published).

"*Female*—Proboscis moderate, slightly swollen apically, black; a pale line ventrally. Occiput with black scales with bluish reflection, a white patch on lower part of side. Prothoracic lobes bright violaceous to coppery. Mesonotum with dark brown scales with slight blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, with blue reflection, silvery white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection; mid tarsi with outer half of second, third to fifth joints white on outer side; hind tarsi with tip of third joint, fourth and fifth white all around. Wing-scales broadly ovate, dense, all dark.

"*Male*—Coloration as in the female, the white of mid tarsi more extensive. Hypopygium (Plate XVI, Fig. 49): Side-piece rather broadly conical, tapering to tip, rather densely scaled outwardly. Two setæ inwardly, remote and weak. A triangular chitinized area within. Clasper thick, widened outwardly without separate lobes; the tip is excavate, with setæ on one side and a point on the other; below the crest a little narrow arm folded over; on the other side the margin is a little thickened and a row of setæ runs back nearly to middle of the stem. Tenth sternites large, inner margin chitinized, the tip ending in a strong tooth. Ninth tergites with two long, strong spines on each side, riding on a rather broad transverse bridge which is rather weakly colored. Outer mesosomal appendages rather broad, with false teeth at tip.

"*Larva* (Plate XVI, Fig. 49)—Head rounded; antennæ smooth, uniform; head-hairs single. Comb of the eighth segment about nine separate teeth in a single row. Air-tube straight, slightly tapered, about six times as long as wide; a row of single hairs on dorsal aspect, a few on posterior aspect; a dense fringe of fine, long hairs along ventral line nearly to tip. Anal segment longer than wide, dorsal plate reaching well down the sides. Dorsal tuft of three hairs on each side; lateral hair single, long; subventral tuft of two long hairs on each side, attached to the lower angle of the dorsal plate. Anal gills twice as long as the segment, rounded."—F. M. Root.

Brazil. Magé, Brazil, May 26, 1925 (F. M. Root); Rio de Janeiro, Brazil, May 24, 1925 (F. M. Root).

The larvæ were found in the fluid between the leaves of aroids; one was bred from cut bamboo; two from the water between the leaves of cat-tails.

Subgenus DECAMYIA Dyar

DENDROMYIA (DECAMYIA) ULOCOMA Theobald

DENDROMYIA ULOCOMA Theobald, Mon. Culic., iii, 313, 1903.
WYEOMYIA ONIDUS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 261, 1909.
WYEOMYIA PANTOIA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 262, 1909.

WYEOMYIA CACODELA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 265, 1909.
Wyeomyia pantoia, onidus, and *cacodela* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 123, 125 and 129, 1915.
Decamyia onidus Dyār, Ins. Ins. Mens. vii, 135, 1919.
Wyeomyia (Decamyia) onidus Dyar, Ins. Ins. Mens., xi, 170, 1923.
Prosopolepis (Decamyia) ulocoma Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Decamyia) onidus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 86, 1925.
Prosopolepis (Decamyia) ulocoma Dyar, Ins. Ins. Mens., xiii, 123, 1925.

Female—Proboscis rather short, swollen apically, black with bronzy reflection, narrowly paler beneath. Occiput with blackish scales with bronzy reflection; a small white spot at vertex, continued as a narrow margin behind the eyes, joining a patch on side below. A pale median shade with iridescent reflection, more or less distinct. Prothoracic lobes with dark scales with bronzy reflection. Mesonotum with dark brown scales with blue and bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above with slight metallic reflection; venter yellowish white, the colors separated on the sides in a straight line. Legs black with bronzy reflection; hind tarsi with the fourth and fifth joints silvery white beneath. Wing-scales broadly ovate, tips obliquely subtruncate, dense, all dark.

Male—Coloration as in the female. Hypopygium (Plate XVII, Fig. 51): Side-piece broadly conical, the tip narrowed. A lobe, partly divided off and not quite as long as the main lobe, bears two hairs which are fused at basal half, bent at a right angle and thickened, the tips broad and filamentous. Clasper with rather long stem, contracted, tip divided into three short equal lobes, the middle one with some spines, the outer with a tuft of hairs, the inner simple, pointed. Tenth sternites broad with a stout tooth at tip. Ninth tergites three or four thick ovate plates on each side, riding on a narrow, strongly chitinized bridge. Mesosome two pairs of small appendages, the outer with pointed tips.

Larva (Plate XVII, Fig. 51)—Head rounded; antennæ small, a single hair beyond middle. Head-hairs single, those on front margin and by antennæ double. Lateral comb of the eighth segment of many spines in a patch two or three rows deep. Air-tube about three times as long as wide, four single hairs on dorsal aspect; two or three hairs posteriorly; a false pecten of two to four teeth before the middle of the tube. Anal segment longer than wide, the dorsal plate reaching well down the sides. Dorsal tuft of five hairs (3 + 2) on each side; lateral tuft long, double; subventral tuft short, in five to eight. Anal gills rather longer than the segment, rounded.

Panama; but doubtless also Central America and the northern coast of South America. Guamitas, Venezuela, June 20, 1927 (M. Núñez Tovar).

The larvæ occur in the fluid in the flower-bracts of the red heliconias with upright flowers.

DENDROMYIA (DECAMYIA) PSEUDOPECTEN (Dyar and Knab)

WYEOMYIA PSEUDOPECTEN Dyar and Knab, Proc. Biol. Soc. Wash., xix, 139, 1906.
WYEOMYIA GALOA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 140, 1906.
WYEOMYIA CARA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 264, 1909.
Wyeomyia cara, pseudopecten, and *galoa,* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 118, 119, and 127, 1915.
Wyeomyia cara and *pseudopecten* Dyar, Ins. Ins. Mens., vii, 128 and 136, 1919.
Wyeomyia (Heliconiamyia) galoa Dyar, Ins. Ins. Mens., xi, 65, 1923.

Wyeomyia (Decamyia) pseudopecten Dyar, Ins. Ins. Mens., xi, 170, 1923.
Wyeomyia (Decamyia) pseudopecten Dyar, Ins. Ins. Mens., xii, 86, 1924.
Prosopolepis (Decamyia) pseudopecten Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Decamyia) pseudopecten Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 87, 1925.
Prosopolepis (Decamyia) pseudopecten Dyar, Ins. Ins. Mens., xiii, 123, 1925.

Female—Proboscis rather short, swollen apically, black with bronzy reflection, narrowly paler beneath. Occiput with blackish scales with bronzy reflection; a small white spot at vertex, continued as a narrow margin behind the eyes, joining a patch on side below. A pale median shade with iridescent reflection, more or less distinct. Prothoracic lobes with dark scales with bronzy reflection. Mesonotum with dark brown scales with blue and bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, with slight metallic reflection; venter yellowish white, the colors separated on the sides in a straight line. Legs black with bronzy reflection; hind tarsi with the fourth and fifth joints silvery white beneath. Wing-scales broadly ovate, tips obliquely subtruncate, dense, all dark.

Male—Coloration as in the female. Hypopygium (Plate XVII, Fig. 50): Side-piece broadly conical, the tip narrowed. A lobe, partly divided off and not quite as long as the main lobe, bears two hairs which are long and slender and considerably exceed the tips of the claspers. Clasper with rather long stem, contracted, tip divided into three short equal lobes, the middle one with some spines, the outer with a tuft of hairs, the inner simple, pointed. Tenth sternites broad, with a stout tooth at tip. Ninth tergites three or four thick, ovate plates on each side, riding on a narrow, strongly chitinized bridge. Mesosome two pairs of small appendages, the outer with pointed tips.

Larva (Plate XVII, Fig. 50)—Head rounded; antennæ small, a single hair beyond middle. Head-hairs single, those on front margin and by antennæ double. Lateral comb of the eighth segment of many spines in a patch two or three rows deep. Air-tube about three times as long as wide, four single hairs on dorsal aspect; two or three hairs posteriorly; a false pecten of two to four teeth before the middle of the tube. Anal segment longer than wide, the dorsal plate reaching well down the sides. Dorsal tuft of five hairs (3 + 2) on each side; lateral tuft long, double; subventral tuft short, in five to eight. Anal gills rather longer than the segment, rounded.

Costa Rica, Guatemala, Panama, Venezuela, Trinidad. Peralta, Costa Rica, March 25, 1910 (P. P. Calvert); Maracay, Aragua, Venezuela, June 13, 1927 (M. Núñez Tovar).

The larvæ occur in the fluid in the flower bracts of the red heliconias with upright flowers.

DENDROMYIA (DECAMYIA) ELOISA (Howard, Dyar, and Knab)

Wyeomyia eloisa Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., ii, plate 6, fig. 36, 1912.
Decamyia eloisa Dyar, Ins. Ins. Mens., vii, 137, 1919.
Wyeomyia (Decamyia) eloisa Dyar, Ins. Ins. Mens., xi, 170, 1923.
Prosopolepis (Decamyia) eloisa Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.

Wyeomyia (Decamyia) eloisa Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 90, 1925.
Prosopolepis (Decamyia) eloisa Dyar, Ins. Ins. Mens., xiii, 121, 1925.

Female—Proboscis rather short, swollen apically, black with bronzy reflection, narrowly paler beneath. Occiput with blackish scales with bronzy reflection; a small white spot at vertex, continued as a narrow margin behind the eyes, joining a patch on side below. A pale median shade with iridescent reflection, more or less distinct. Prothoracic lobes with dark scales with bronzy reflection. Mesonotum with dark brown scales, with blue and bronzy reflection; pleuræ and coxæ with silvery white scales. Abdomen black above with slight metallic reflection; venter yellowish white, the colors separated on the sides in a straight line. Legs black with bronzy reflection; hind tarsi with the fourth and fifth joints silvery white beneath. Wing-scales broadly ovate, tips obliquely subtruncate, dense, all dark.

Male—Coloration as in the female. Hypopygium (Plate XVII, Fig. 52): Side-piece broadly conical, the tip narrowed. A lobe, partly divided off and not quite as long as the main lobe, bears two hairs which are moderately long, not reaching to the tips of the claspers. Clasper with rather long stem, contracted, tip divided into three short, equal lobes, the middle one with some spines, the outer with a tuft of hairs, the inner simple, pointed. Tenth sternites broad with a stout tooth at tip. Ninth tergites three or four thick, ovate plates on each side, riding on a narrow, strongly chitinized bridge. Mesosome two pairs of small appendages, the outer with pointed tips.

Larva (Plate XVII, Fig. 52)—Head rounded; antennæ small, a single hair beyond middle. Head-hairs single, those on front margin and by antennæ double. Lateral comb of the eighth segment of many spines in a patch two or three rows deep. Air-tube about three times as long as wide, four single hairs on dorsal aspect; two or three hairs posteriorly; a false pecten of two to four teeth before the middle of the tube. Anal segment longer than wide, the dorsal plate reaching well down the sides. Dorsal tuft of five hairs (3 + 2) on each side; lateral tuft long, double; subventral tuft short, in five to eight. Anal gills rather longer than the segment, rounded.

Panama, Trinidad, Surinam.

The larvæ live in the fluid in the flower-bracts of the heliconias with upright yellow or brown flowers *(Calathea)*.

DENDROMYIA (DECAMYIA) FELICIA Dyar and Núñez Tovar

Dendromyia (Decamyia) felicia Dyar and Núñez Tovar, Notas Sobre Neuv. Dipt. de Venez., 3, 1927.
Dendromyia (Decamyia) felicia Dyar and Núñez Tovar, Am. Journ. Hyg., viii, 90, 1928.

Female—Proboscis rather short, swollen apically, black with slight bluish or bronzy reflection. Occiput black with bluish reflection, a broad whitish stripe on vertex and narrow white border behind the eyes. Prothoracic lobes with dark scales with bronzy reflection. Mesonotum with dark brown scales with slight blue and bronzy reflection; pleuræ and coxæ yellowish, with grayish silvery small scales. Abdomen black above, with slight metallic reflection, white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection. Wing-scales broadly ovate, dense, all dark.

Male—Coloration of the female. Hypopygium (Plate CXXIII, Fig. 418): Side-piece broadly rounded at base, conically narrowed at tip; a small lobe near middle partly divided off bears two long conjoined setæ, their tips widened spoon-shaped, reaching about to the middle of the clasper. Clasper with rather long narrow stem, the tip widened into a broad wing with granular margin and two points bearing short thick spines. Tenth sternites broad, pointed at tip. Ninth tergites forming a heavy angular bridge bearing twelve long, blunt, flattened spines in a continuous row. Mesosome two pairs of pointed appendages.

Larva—Unknown.

Venezuela (Tio Julien, Guamitas, Rancho Grande).

The larvæ were found in the fluid in the leaf-bases of elephant's ear *(Colocasia)*, also in the flower-bracts of the red-flowered heliconia.

Subgenus EUNICEMYIA Dyar and Shannon

DENDROMYIA (EUNICEMYIA) ALBOSQUAMATA (Bonne-Wepster and Bonne)

WYEOMYIA ALBOSQUAMATA Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 107, 1919.
Menolepis albosquamata Dyar, Ins. Ins. Mens., vii, 138, 1919.
Prosopolepis (Eunicemyia) albosquamata Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Menolepis) albosquamata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 78, 1925.

Female—Proboscis moderate, stout, swollen at tip, black with blue and bronzy reflection. Occiput with dark scales with pearly reflections especially on vertex; a narrow white border behind the eyes, intensified at vertex, joining a large patch on lower part of side. Prothoracic lobes with dark brown scales of the color of the mesonotum, white below. Mesonotum with dark brown scales with slight bronzy reflection; pleuræ and coxæ with silvery white scales. Some white scales on the postnotum. Abdomen black above, white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection; hind tarsi with the fourth and fifth joints white below, the white narrower at tip of fourth joint. Wing-scales broadly ovate, dense, all dark.

Male—Coloration as in the female. Hypopygium (Plate XVIII, Fig. 53): Side-piece short, broadly conical, narrowed at tip; well covered with scales, especially without. Clasper as long as the side-piece, with long, slender, curved stem, the tip expanded and truncate; one angle roundedly produced, the margin with several short spines pointing in different directions. Tenth sternites wide, rather weak, one margin narrowly chitinized, the tip dentate, of rather large teeth. Ninth tergites a broad band of weak chitin, three very stout but not long spines on each side, much more darkly colored than any other part.

Larva (Plate XVIII, Fig. 53)—Head rounded, wider than long; antennæ small, with a hair outwardly. Head-hairs short but multiple, upper in five, lower in three. Lateral comb of the eighth segment a long line of single spines covering most of the side. Air-tube four times as long as wide, very slightly tapering; four single hairs on each side of the tube; a triple tuft near base behind and a double one on the side. Anal segment as wide as long, the plate reaching well down the side. Dorsal tuft of two long hairs on each side; lateral hair single, long; subventral tuft in six on each side,

rather long. Anal gills somewhat longer than the segment, roundedly pointed.

Surinam.

The larvæ were found in water in the leaf-bases of Bromeliaceæ.

Subgenus HYSTATOMYIA Dyar

DENDROMYIA (HYSTATOMYIA) INTONCA (Dyar and Knab)

WYEOMYIA INTONCA Dyar and Knab, Proc. Ent. Soc. Wash., xi, 173, 1910.
Hystatomyia intonca Dyar, Ins. Ins. Mens., vii, 141, 1919.
Wyeomyia (Hystatomyia) intonca Dyar, Ins. Ins. Mens., xi, 170, 1923.
Prosopolepis (Hystatomyia) intonca Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Hystatomyia) intonca Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 76, 1925.
Prosopolepis (Hystatomyia) intonca Dyar, Ins. Ins. Mens., xiii, 124, 1925.
Dendromyia intonca Dyar, Ins. Ins. Mens., xiv, 43, 1926.

Female—Proboscis moderate, swollen apically, black with bronzy and blue reflection. Occiput with dark brown scales; a narrow white margin behind the eyes joining a patch at the side below. Prothoracic lobes with dark scales like those of the mesonotum. Mesonotum with dark brown scales with bronzy reflection; pleuræ and coxæ with white scales. Abdomen black above, white below, the colors separated on the sides in a straight line. Legs dark brown, with bronzy reflection. Wing-scales rather broadly ovate, dense, all dark.

Male—Coloration as in the female, except that the mid tarsi are more or less distinctly ornamented with white; apical half of first joint and base of second black; base of first joint white below, apical half of second and all of third to fifth white all around. Hypopygium (Plate XVIII, Fig. 54): Side-piece quadrate, the outer angle drawn out into a slender arm twice as long as the basal part of the segment, with long, strong hairs at tip; on the basal part are three groups of long, yellow hairs with clawed tips and a fourth group outwardly at base of prolongation of side-piece. Clasper small, simple, arising at the base of prolongation inwardly. Tenth sternites nearly obsolete, weak, membranous, pointed. Ninth tergites a small chitinous bridge with three long, curved spines on each side. Mesosome a pair of small, weak appendages with pointed tips.

Larva (Plate XVIII, Fig. 54)—Head rounded; antennæ moderate, with a small tuft beyond the middle. Lateral comb of the eighth segment of many spines in a large patch three rows deep. Air-tube long, tapered strongly on basal third, outer portion attenuated and slightly curved, uniform in width toward tip. A row of single hairs on dorsal aspect; a similar row on ventral aspect, replaced toward base by a three-haired tuft; a false pecten of about six long teeth on ventral line before middle of tube. Anal segment longer than wide; dorsal plate reaching well down the side. Dorsal tuft four hairs on each side; lateral tuft double, long; subventral tuft short, in about eight. Anal gills somewhat pointed at tips, twice as long as the segment.

Panama.

The larvæ are found in the water in the leaf-bases of wild pineapple *(Ananas magdalenæ)*.

DENDROMYIA (HYSTATOMYIA) CIRCUMCINCTA (Dyar and Knab)

WYEOMYIA CIRCUMCINCTA Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 210, 1907.
WYEOMYIA MACROTUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 212, 1907.
WYEOMYIA ANDROPUS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 68, 1908.
WYEOMYIA AGYRTES Dyar and Knab, Smiths. Misc. Colls. Quart. Iss., lii, 265, 1909
Wyeomyia agyrtes and *circumcinta* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 133 and 150, 1915.
Wyeomyia agyrtes Dyar, Ins. Ins. Mens., vii, 128, 1919.
Hystatomyia circumcincta Dyar, Ins. Ins. Mens., vii, 141, 1919.
Wyeomyia (Hystatomyia) circumcincta Dyar, Ins. Ins. Mens., xi, 170, 1923.
Prosopolepis (Hystatomyia) circumcincta Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Hystatomyia) circumcincta Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 73, 1925.
Prosopolepis (Hystatomyia) circumcincta Dyar, Ins. Ins. Mens., xiii, 125, 1925.

Female—Proboscis moderate, swollen apically, black with bronzy and blue reflection. Occiput with dark brown scales; a narrow white margin behind the eyes, joining a patch at the side below. Prothoracic lobes with dark scales like those of the mesonotum. Mesonotum with dark brown scales with bronzy reflection; pleuræ and coxæ with white scales. Abdomen black above, white below, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection. Wing-scales rather broadly ovate, dense, all dark.

Male—Coloration as in the female, except that the mid tarsi are more or less distinctly ornamented with white; apical half of first joint and base of second black; base of first joint white below; apical half of second and all of third to fifth white all around. Hypopygium (Plate XVIII, Fig. 55): Side-piece quadrate, the outer angle drawn out into a slender arm twice as long as the basal part, with a group of stiff hairs at tip. On the basal part two large groups of yellow hairs with clawed tips. Clasper small and weak, simple, a little expanded at tip, arising from the base of the prolongation of side-piece within. Tenth sternites slender, weak, obsoletely spined at tip. Ninth tergites three stout spines on each side, somewhat approximate, on a weakly chitinized bridge. Mesosome of two pairs of slender appendages resembling the tenth sternites, the outer pair falsely toothed; also a pair of short oval appendages with thickened tips.

Larva (Plate XVIII, Fig. 55)—Head rounded; antennæ moderate, with a small tuft beyond the middle. Lateral comb of the eighth segment of many spines in a large patch three rows deep. Air-tube long, tapered strongly on basal third, outer portion attenuated and slightly curved, uniform in width toward tip. A row of single hairs on dorsal aspect; a similar row on ventral aspect, replaced toward base by a three-haired tuft; a false pecten of about six long teeth on ventral line before middle of tube. Anal segment longer than wide; dorsal plate reaching well down the side. Dorsal tuft four hairs on each side; lateral tuft double, long; subventral tuft short in about eight. Anal gills somewhat pointed at tips, twice as long as the segment.

Panama.

The larvæ are frequent in the water in the leaf-bases of epiphytic Bromeliaceæ *(Tillandsia)*.

DENDROMYIA (HYSTATOMYIA) CŒNONUS (Howard, Dyar, and Knab)

WYEOMYIA CŒNONUS Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., ii, Plate 6, fig. 38, 1912.
Hystatomyia cœnonus Dyar, Ins. Ins. Mens., vii, 141, 1919.
Wyeomyia (Hystatomyia) cœnonus Dyar, Ins. Ins. Mens., xi, 170, 1923.
Hystatomyia cœnonus Dyar and Shannon, Journ. Wash. Acad. Sci., xii, 88, 1924.
Prosopolepis (Hystatomyia) cœnonus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1925.
Wyeomyia (Hystatomyia) cœnonus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 74, 1925.
Prosopolepis (Hystatomyia) cœnonus Dyar, Ins. Ins. Mens., xiii, 125, 1925.

Female—Proboscis moderate, swollen apically, black with bronzy and blue reflection. Occiput with dark brown scales; a narrow white margin behind the eyes, joining a patch at the side below. Prothoracic lobes with dark scales like those of the mesonotum. Mesonotum with dark brown scales with bronzy reflection; pleuræ and coxæ with white scales. Abdomen black above, white below, the colors separated on the sides in a straight line. Legs brown with bronzy reflection. Wing-scales rather broadly ovate, dense, all dark.

Male—Coloration as in the female, except that the mid tarsi are more or less distinctly ornamented with white; apical half of first joint and base of second black; base of first joint white below, apical half of second and all of third to fifth white all around. Hypopygium (Plate XIX, Fig. 56): Side-piece quadrate, the outer angle drawn out into a slender arm longer than the basal part. A single oval patch of long, curved yellow hairs with simple tips. Prolongation of the side-piece with terminal hairs denser but not modified from the type of the general vestiture. Clasper long, simple, with triangular tip, nearly as long as the prolongation of side-piece. Tenth sternites weak, membranous, but with normal thickened tip and single tooth. Ninth tergites of four rather weak spines on each side, the bridge very narrow between them, somewhat approximate.

Larva (Plate XIX, Fig. 56)—Head rounded; antennæ moderate, with a small tuft beyond the middle. Lateral comb of the eighth segment of many spines in a large patch three rows deep. Air-tube long, tapered strongly on basal third, outer portion attenuated and slightly curved, uniform in width toward tip. A row of single hairs on dorsal aspect; a similar row on ventral aspect, replaced toward base by a three-haired tuft; a false pecten of about six long teeth on ventral line before middle of tube. Anal segment longer than wide; dorsal plate reaching well down the side. Dorsal tuft four hairs on each side; lateral tuft double, long; subventral tuft short in about eight. Anal gills somewhat pointed at tips, twice as long as the segment.

Panama.

The larvæ are found in the fluid between the flower-bracts of the heliconias with upright yellow or brown flowers *(Calathea)*.

DENDROMYIA (HYSTATOMYIA) AUTOCRATICA (Dyar and Knab)

WYEOMYIA AUTOCRATICA Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 227, 1906.
Wyeomyia autocratica Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 116, 1915.
Prosopolepis (Hystatomyia) autocratica Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.

Wyeomyia (Hystatomyia) autocratica Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 76, 1925.

Female—Proboscis moderate, swollen apically, black with bronzy and blue reflection. Occiput with dark brown scales with metallic reflection; a narrow white border behind the eyes, joining a patch on lower part of side; a whitish longitudinal stripe on the vertex more or less distinct. Prothoracic lobes with blackish brown scales with metallic reflection, the tips coppery in certain lights. Mesonotum with dark brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally with slight metallic reflection; venter yellowish white, the colors separated on the sides in a straight line. Legs black with bronzy and blue reflection. Wing-scales ovate, rather broad, dense, all dark.

Male—Coloration as in the female, except the mid tarsi, which are silvery white on second to fifth joints, more brassy colored above. Hypopygium (Plate XIX, Fig. 58): Side-piece conical with round pointed tip, apparently of normal structure; but the small reduced clasper is situated about the middle of the inner margin, showing that the outer half of the side-piece really represents a prolongation; a row of fine setæ across the disk; hairs at apex numerous and large, three or four of them flattened sword-shape; a narrow pedicel subapically bearing two short sword-shaped spines. Clasper small bulbous, with a few setæ at tip. Tenth sternites weak, membranous, resembling the mesosomal plates with which they are associated. Ninth tergites a pair of thick lobes, each with three stout spines, joined below by a short bridge.

Larva (Plate XIX, Fig. 58)—Head rounded; antennæ moderate, two small hairs beyond the middle. Lateral comb of the eighth segment of many spines in a large triangular patch. Air-tube slender, tapering outwardly, six times as long as wide; a row of long, single hairs on the dorsal and ventral aspects, and a series of seven closely placed false pecten teeth beyond the base. Anal segment as long as wide, the dorsal plate reaching well down the side; dorsal tuft of four (2+2) long hairs on each side; lateral tuft long, double; subventral tuft in eight, small, on each side.

Trinidad.

The larvæ were found in water at the leaf-bases of epiphytic Bromeliaceæ

DENDROMYIA (HYSTATOMYIA) LAMELLATA Bonne-Wepster and Bonne

HYSTATOMYIA LAMELLATA Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 168, 1920.

Prosopolepis (Hystatomyia) lamellata Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.

Wyeomyia (Hystatomyia) lamellata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 74, 1925.

Female—Proboscis moderate, swollen apically, black with bronzy and blue reflection. Occiput with dark brown scales with metallic reflection; a narrow white border behind the eyes joining a patch on lower part of side; a whitish longitudinal stripe on the vertex more or less distinct. Prothoracic lobes with blackish brown scales with metallic reflection, the tips coppery in certain lights. Mesonotum with dark brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black dorsally with slight metallic reflection, venter yellowish white, the colors

separated on the sides in a straight line. Legs black with bronzy and blue reflection. Wing-scales ovate, rather broad, dense, all dark.

Male—Coloration as in the female, except the mid tarsi which are silvery white on second to fifth joints, more brassy colored above. Hypopygium (Plate XIX, Fig. 57): Side-piece conical, with round pointed tip, apparently of normal structure; but the small reduced clasper is situated about the middle of the inner margin, showing that the outer half of the side-piece really represents a prolongation; a row of fine setæ across the disk; apical setæ shortened, three of them forming short, broad blades; subapically a broad and a narrow blade, sessile. Clasper small, bulbous, with a number of setæ apically. Tenth sternites weak, membranous, resembling the mesosomal plates with which they are associated. Ninth tergites two broad lobes with four or five stout spines each, joined below by a short bridge.

Larva—Unknown.

Surinam.

The larvæ were found in water in the leaf-bases of Bromeliaceæ.

DENDROMYIA (?HYSTATOMYIA) LUTEOVENTRALIS (Theobald)

WYEOMYIA LUTEOVENTRALIS Theobald, Mon. Culic., ii, 348, 1901.
Dentromyia luteoventralis Theobald, Mon. Culic., iii, 318, 1903.
Dentromyia luteoventralis Blanchard, Les Moust., 426, 1905.
Dentromyia luteoventralis Peryassú, Os Culic. do Braz., 305, 1908.
Dentromyia luteoventralis Theobald, Mon. Culic., v, 390, 1910.
Dentromyia luteoventralis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 260, 1911.
Dentromyia luteoventralis Dyar, Ins. Ins. Mens., vii, 124, 1919.
Dentromyia luteoventralis Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 11, 1921.
Wyeomyia (Dendromyia) luteoventralis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 107, 1925.

Female—Proboscis moderate, dark brown. Occiput with dark brown scales; a white border behind the eyes and a pale stripe between them. Prothoracic lobes coppery tipped. Mesonotum with dark brown scales; pleuræ and coxæ with white scales. Abdomen black above with violaceous reflection, especially at base; venter yellowish white, the colors separated on the sides in a straight line. Legs dark brown with coppery reflection. Wing-scales rather broad, dense, all dark.

Male—Unknown.

Larva—Unknown.

Brazil (Pará).

This species is not before me, but its seems not improbable that it is a *Hystatomyia*, representing *autocratica* of Trinidad and *lamellata* of Surinam. These forms are so flexible—different species occurring in Trinidad and Surinam, which is unique—that undoubtedly the form from Pará is a distinct species.

Subgenus JANICEMYIA Dyar and Shannon

DENDROMYIA (JANICEMYIA) CLASOLEUCA (Dyar and Knab)

WYEOMYIA CLASOLEUCA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 68, 1908.
Wyeomyia clasoleuca Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 92, 1915.
WYEOMYIA GRENADENSIS Edwards, Bull. Ent. Res., vi, 363, 1916.

Dodecamyia clasoleuca Dyar, Ins. Ins. Mens., vii, 139, 1919.
Wyeomyia grenadensis Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 10, 1921.
Wyeomyia (Dodecamyia) clasoleuca Dyar, Ins. Ins. Mens., xi, 170, 1923.
Prosopolepis (Janicemyia) clasoleuca Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Dodecamyia) clasoleuca Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 65, 1925.
Prosopolepis (Janicemyia) clasoleuca Dyar, Ins. Ins. Mens., xiii, 122, 1925.

Female—Proboscis moderate, expanded at tip, bronzy black, brighter beneath. Occiput with dark brown scales with blue reflection; a more or less distinct white border behind the eyes, joining a large patch on the side. Prothoracic lobes metallic blue and violaceous. Mesonotum with dark brown scales with bronzy and blue reflection; pleuræ and coxæ with silvery white scales. Abdomen black above, yellowish white below, the colors separated on the sides in a straight line. Legs black with bronzy reflection; hind tarsi with basal three-fourths of fourth and fifth joints broadly white beneath. Wing-scales broadly ovate, dense, all dark.

Male—Coloration as in the female. Hypopygium (Plate XX, Fig. 59): Side-piece rounded, almost circular in outline, densely hairy, the apical hairs long. Clasper simple, broadly ligulate, the tip pointed, with several setæ. Tenth sternites large, broad, one margin chitinized, the tips thick and dentate. Ninth tergites quadrate, projecting, joined by a narrow bridge, each with three curved spines widened outwardly, sharp-tipped.

Larva—Unknown.

Panama, Surinam, Grenada (Lesser Antilles).

This species is distributed probably all along the southern Carribean coast, but is seldom seen, and the larva and life-history remain unknown. The adults attack cold-blooded animals. Shannon has observed them biting lizards when these were quiet in the act of copulation.

Subgenus PROSOPOLEPIS Lutz (?)

DENDROMYIA (————————) CONFUSA (Lutz)

Prosopolepis confusus Lutz, Imp. Med., 312, 1905.
Prosopolepis confusus Peryassú, Os Culic. do Braz., 311, 1908.
Prosopolepis confusus Theobald, Mon. Culic., v, 594, 1910.
Prosopolepis confusus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 255, 1911.
Prosopolepis confusus Dyar, Ins. Ins. Mens., vii, 142, 1919.
Prosopolepis (Prosopolepis) confusus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Prosopolepis confusus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop, Hyg. No. 13, 135, 1925.

Female—Proboscis moderate, swollen at tip, dark brown with slight bluish reflection. Occiput dark brown, a narrow white border behind the eyes, joining a patch below. Clypeus with small white scales, which are readily deciduous. Prothoracic lobes with dark brown scales with blue luster. Mesonotum with dark brown scales; pleuræ and coxæ with silvery white scales. Abdomen black above, yellowish white below, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection; hind tarsi with the fourth and fifth joints white all around, wing-scales

rather broadly ovate, but in the cell many linear ones project on both sides, all dark.

Male—Unknown.

Larva—Unknown.

Brazil.

Apparently a distinct form, of which the male, larva, and habits await discovery. This is the type of the generic name *Prosopolepis* Lutz, probably entitled to subgeneric rank; but without a male I am unable to place it in the tables.

DENDROMYIA (————————) FLUI (Bonne-Wepster and Bonne)

PROSOPOLEPIS FLUI Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 169, 1920.
Prosopolepis flui Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 16, 1921.
Prosopolepis (Prosopolepis) flui Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Prosopolepis flui Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 135, 1925.

Female—Proboscis moderate, swollen at tip, dark brown with a slight bluish reflection. Occiput dark brown, a narrow white border behind the eyes joining a patch below. Clypeus with small white scales, which are readily deciduous. Prothoracic lobes with dark brown scales with blue luster. Mesonotum with dark brown scales; pleuræ and coxæ with silvery white scales. Abdomen black above, yellowish white below, the colors separated on the sides in a straight line. Legs dark brown, with bronzy reflection; hind tarsi with the fourth and fifth joints white all around. Wing-scales rather broadly ovate, but in the cell many linear ones project on both sides, all dark.

Male—Unknown.

Larva—Unknown.

Surinam.

There is no perceptible difference between this species and *confusa* of Brazil. They are probably the same; but I hold them apart on the locality solely, awaiting further information.

Genus ISOSTOMYIA Coquillett

ISOSTOMYIA Coquillett, U. S. Dept. of Agr., Bur. Ent., Tech. Ser. 11, 16, 1906.
LYNCHIARIA Brèthes, Bol. Inst. Ent. of Pat. Veg., i, 40, 1912.
Isostomyia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.

Pronotal setæ present, except in one species *(espini)*; clypeus without setæ; lower sternopleural setæ distinctly below upper margin of lateral meta-sternal sclerite; palpi very small in both sexes.

This genus is allied to *Goeldia* and was formerly included in it. The adults are seldom seen, although *espini* is somewhat frequent seasonally in hand catches indoors. The larvæ are predacious upon other sabethid larvæ living in water between the leaves of several families of water-bearing plants. Dr. Bonne speaks of the appearance of the adult while flying around "before biting."

TABLE OF SPECIES

ADULT

1. Abdominal colors separated in a nearly straight line 2
   Abdominal colors incised roundedly 3

2. Scutellum silvery on mid lobe . . . . . *magna* Theobald
   Scutellum concolorous with mesonotum . . . . . *perturbans* Williston
3. Incisions of the black color laterally moderate . . . . . *espini* Martini
   These incisions deep . . . . . *paranensis* Brèthes

MALE HYPOPYGIUM

1. An area of dense setæ as a basal lobe on inner side of base of side-piece . . . 2
   Without basal setæ on side-piece; two stout setæ within near middle, *espini* Martini
2. Side-piece with a ridge of long hair near apex . . . . . *perturbans* Williston
   Without this structure 3
3. Spines on basal lobe of side-piece short . . . . . *magna* Theobald
   These spines very long, curved, exceeding the side-piece . . . *paranensis* Brèthes

LARVA

1. Maxillæ with terminal short horn and appendage; air-tube with posterior fringe of single hairs; comb of thirty teeth on a long bar . . . *magna* Theobald
   Air-tube with scattered fringe outwardly; comb of separate teeth . *espini* Martini

The larvæ of the following species are unknown: *Perturbans* and *paranensis*.

ISOSTOMYIA PERTURBANS (Williston)

AËDES PERTURBANS Williston, Trans. Ent. Soc. Lond., 271, 1896.
Isostomyia perturbans Coquillett, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 11, 16, 1906.
Isostomyia perturbans Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 187, 1915.
Goeldia perturbans Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 16, 1921.
Goeldia perturbans Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia (Isostomyia) perturbans Dyar, Ins. Ins. Mens., xi, 83, 1923.
Isostomyia perturbans Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Goeldia perturbans Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 147, 1925.

Female—Proboscis long, slender, brownish black. Occiput with blackish scales. Mesonotum with dark brown scales, the scutellum concolorus; pleuræ and coxæ with silvery scales. Abdomen black above, yellowish silvery below, the colors separated on the sides in a straight line. Legs black, with bronzy reflections. Wing-scales ovate, dense, all dark.

Male—Coloration as in the female. Hypopygium: Side-piece very slender, four times as long as wide. Clasper long, slender, attenuated, with rounded terminal appendage; basal lobe forming a crest on inner side of side-piece at base. A densely setose ridge or area with long hairs near the apex. Tenth sternites short, with single terminal teeth. Ninth tergites not contiguous, each with seven spines. Mesosome forming a basal cylinder.

Larva—Unknown.

St. Vincent (Lesser Antilles).

According to the usual rule in distribution, this species should be found in the Guianas and Trinidad, the Lesser Antilles not having an endemic fauna of their own, but partaking of that of the mainland. It has not been found, however. The larvæ are prabably predacious upon sabethid larvæ living in the water in the leaf-bases of Bromeliaceæ. The species is not before me.

ISOSTOMYIA MAGNA (Theobald)

PHONIOMYIA MAGNA Theobald, Ann. Nat. Mus. Hung., iii, 117, 1905.
PHONIOMYIA HOMOTINA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 141, 1906.
Phoniomyia magna Theobald, Mon. Culic., iv., 602, 1907.
Phoniomyia magna Theobald, Mon. Culic., v, 577, 1910.
Phoniomyia magna Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 244, 1911.
Wyeomyia homotina and LESTICOCAMPA DICELLAPHORA, Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 58 and 166, 1915.
Dendromyia homotina Dyar, Ins. Ins. Mens., vii, 124, 1919.
Goeldia dicellaphora Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 18, 1921.
Goeldia dicellaphora Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia homotina Dyar, Ins. Ins. Mens. xi, 83, 1923.
Goeldia (Isostomyia) homotina Dyar, Ins. Ins. Mens., xi, 174, 1923.
Isostomyia homotina Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Wyeomyia (Dendromyia) homotina Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 149, 1925.

Female—Proboscis long and slender, exceeding the length of the abdomen, black with bluish reflection. Occiput black with blue reflection; a round patch at vertex and one low on each side, whitish with silvery reflection. Prothoracic lobes small with a few dark scales. Mesonotum with small brown scales with blue reflection; mid lobe of scutellum bright silvery in certain lights; pleuræ and coxæ with small silvery scales. Abdomen black above, silvery white below, the colors separated on the sides in a straight line. Legs dark brown with bronzy reflection. Wing-scales narrowly ovate, shorter and broader toward apices of third to fifth vein, all dark.

Male—Coloration as in the female. Hypopygium (Plate XX, Fig. 60): Side-piece elliptical, narrowly attached at base; a patch of stiff setæ about half as long as the side-piece and from large basal tubercles near base of side-piece within. Clasper long, slender, with a rather large inserted terminal spine. Tenth sternites large, broad, chitinized on one margin, the tip strongly chitinized and with two separated teeth. Ninth tergites broad, each with a row of six rather slender long spines.

Larva (Plate XX, Fig. 60)—Head rounded; antennæ small, slender, a hair beyond the middle. Upper and lower head-hairs single; those about the mouth and at antennæ double. Maxillæ elongated, narrow, ending in a terminal horn and long adjacent appendage. Lateral comb of the eighth segment of numerous spines in a long, straight row, arising from a basal collar-like chitinization. Air-tube about five times as long as wide, regularly tapering outwardly, finely spicular, with a fringe of long, fine, single hairs along posterior margin; three small tufts outwardly toward tip. Anal segment as wide as long, the dorsal plate reaching unusually far down the sides. Dorsal tuft of two long hairs and a short one on each side; lateral hair long, single; subventral tuft of four rather long hairs.

Guatemala, Nicaragua, Costa Rica, Panama, Venezuela, Surinam, Bolivia.

The larva is predacious upon the sabethids living in the fluid in the flower-bracts of the yellow and brown flowered heliconias *(Calathea)*. The species is extremely rare and seldom taken unless bred from its peculiar habitat. Dr. F. M. Root bred the species from yellowish Heliconia *(Calathea)* at Rancho Grande, Venezuela, but without determining the identity of the prey, which had been completely devoured.

ISOSTOMYIA PARANENSIS (Brèthes)

LYNCHIARIA PARANENSIS Brèthes, Bol. Inst. Ent. y Pat. Veg., i, 40, 1912.
Goeldia paranensis Dyar, Ins. Ins. Mens., x, 99, 1922.
Isostomyia paranensis Dyar and Shannon, Journ. Wash, Acad. Sci., xiv, 482, 1924.

Female—Proboscis long and slender, as long as the abdomen, black with blue reflection. Occiput with black scales with violaceous reflection, a white patch on the side below. Prothoracic lobes small, brown, with a few dark brown scales with blue reflection, white ones below. Mesonotum with rather small dark brown scales; pleuræ and coxæ with silvery white scales. Abdomen black above with blue and bronzy reflections, silvery white below, the colors separated on the sides very irregularly, the white incising the black roundedly on each segment in the middle or a little back of the middle. Legs black with blue and bronzy reflections. Wing-scales narrowly ovate, denser toward tips of veins, all dark.

Male—Coloration as in the female. Hypopygium (Plate XXI, Fig. 62): Side-piece cylindrical, the tips rounded, base a little narrowed. An oblique area near base of long, stiff, curved yellow hairs, which are about as long as the side-pieces and interlaced together at their tips. Clasper long, slender, with rather long rounded-tipped terminal spine. Tenth sternites rather long, slender, membranous, the tips black and with five or six small, distant, outwardly directed teeth. Ninth tergites broad, quadrate, thin, each with six weak spines in a row. Mesosome two pairs of weak appendages, the inner with divided tips.

Larva—Unknown.

Argentina and Brazil. Porto das Caixas, Brazil, June 9, 1925 (F. M. Root).

The life-history of this species remains unknown.

ISOSTOMYIA ESPINI (Martini)

LESTICOCAMPA ESPINI Martini, Ins. Ins. Mens., ii, 65, 1914.
TRICHOPROSOPON (JOBLOTIA) SHROPSHIREI Ludlow, Psyche, xxvi, 168, 1920.
Goeldia espini Dyar, Ins. Ins. Mens., ix, 27, 1921.
Goeldia espini Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia espini Dyar Ins. Ins. Mens., xi, 83, 1923.
Goeldia (Isostomyia) espini Dyar, Ins. Ins. Mens., xi, 174, 1923.
Isostomyia espini Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Isostomyia espini Dyar, Ins. Ins. Mens., xiii, 127, 1925.
Goeldia espini Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 152, 1925.

Female—Proboscis long and slender, longer than the abdomen, black with blue reflection. Occiput black with blue reflection, a pale spot on the side below. Prothoracic lobes with black scales with blue reflection, pale below. Mesonotum with dark brown scales with blue reflection, pleuræ and coxæ with yellowish silvery scales. Abdomen black above with blue reflection, yellowish white below, the colors separated on the sides in an undulating line, the white incising the black roundedly, leaving black lines in the incisures, especially anteriorly. Legs dark brown with bronzy reflection. Wing-scales narrowly ovate, denser and broader toward the tips of veins 2 to 4, all dark.

Male—Coloration as in the female. Hypopygium (Plate XX, Fig. 61): Side-piece cylindrical with rounded tip, nearly three times as long as wide,

densely hairy; a small inner lobe bearing one stout hair and two smaller ones. Clasper long, slender, with very short rounded terminal spine. Tenth sternites long, narrow, thin, with a sharp black tip with single tooth. Ninth tergites broad, rounded, each with six moderate slender spines in a row. Mesosome forming a basal cylinder with pointed tip.

Larva (Plate XX, Fig. 61)—Head rounded, somewhat longer than wide; antennæ small, uniform, a hair beyond the middle. Maxillæ elongated, excavate before tip, with terminal short horn and long horn-like appendage; inwardly three or four teeth and lumps irregularly distributed with setæ attached, the longest one being subapical and having four setæ from its tip. Lateral comb of the eighth segment of about twelve separate teeth in an irregularly single row. Air-tube three times as long as wide, stout, little tapered; surface sparsely spicular; a loose scattered group of single short hairs on outer half of tube ventrally; a pair of large six- or seven-haired tufts at basal third; a similar but minute pair subapically. The closing mechanism of the tube has two long spines and two thick fimbriated rods. Anal segment as wide as long, the plate reaching well down the sides, but the ventral part below it is produced backward. Dorsal tufts missing in the specimen; lateral hair single, long; subventral tufts in four, long and strong, as long as the lateral hair.

Panama.

The larvæ are predacious upon other sabethid larvæ living in the fluid between the leaves of Araceæ. The life history remained unknown until discovered by Dr. D. P. Curry in January 1927. The adults are occasionally common in hand catches indoors together with *Dendromyia (Melanolepis) prolepidis*, one of the species on which their larvæ feed. Dr. D. P. Curry informs me that the adults bit him readily while collecting among aroids in a garden.

Genus GOELDIA Theobald

Runchomyia Theobald (not *Rhynchomyia* Robineau-Desvoidy, 1830), Mon. Culic., iii, 319, 1903.
Goeldia Theobald, Mon. Culic., iii, 330, 1903.
Binotia Blanchard, Les Moust., 427, 1905.
Lesticocampa Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 225, 1906.
Hyloconops *Theobald,* Mon. Culic., iv, 586, 1907.
Lesticocampa Dyar, Ins. Ins. Mens., vii, 9, 1919.
Goeldia Bonne-Wepster and Bonne. Dyar, Ins. Ins. Mens., ix, 12, 1921.
Goeldia Bonne-Wepster and Bonne. Dyar, Ins. Ins. Mens., x, 37, 1922.
Goeldia Dyar, Ins. Ins. Mens., xi, 81, 1923.
Goeldia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 482, 1924.
Goeldia and *Isostomyia* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 138, 1925.

Pronotal setæ present; prothoracic lobes widely separated; clypeus without setæ; lower sternopleural setæ extending above the margin of the lateral metasternal sclerite. The palpi in the males are long.

The species of *Goeldia* are all somewhat large and showy sabethids, some of them with raised scales on the legs, although without any such extreme development as in *Sabethes*. They are day-flyers in forest and also not infrequently taken indoors, although seldom biting. The larvæ, as with *Isostomyia*, are predacious upon other sabethid larvæ in the fluid between leaves and bracts of water-bearing plants. The same species will frequent

a number of different plants, but only such as harbor the small sabethids of *Wyeomyia* and *Dendromyia.*

Table of Species

ADULT

1. Hind tibiæ without a white spot at outer third 2
   Hind tibiæ with a white spot at outer third 9
2. Mid and hind tarsi white-marked 3
   Mid tarsi only white-marked . . . . . *lampropus* Howard, Dyar, and Knab
   Tarsi all dark, without white markings 5
3. Second hind tarsal joint not ciliate; tip of fourth joint white, *leucopus* Dyar and Knab
   Second hind tarsal joint ciliate; over half of fourth joint white 4
4. Mid legs with all of the second joint white nearly all around . . . *trichopus* Dyar
   Mid legs with white only on outer half . . . . . *longipes* Fabricius
5. A yellow line in middle of mesonotum . . . . . *lineata* Peryassú
   Without such discolorous line 6
6. Proboscis long and slender, as long as the abdomen 7
   Proboscis moderate, shorter than the abdomen 8
7. Abdominal colors separated in a nearly straight line . . . . . *frontosa* Theobald
   Abdominal colors strongly incised laterally . . . . . { *rapax* Dyar and Knab / *lunata* Theobald
8. Palpi long, nearly as long as one-third of the proboscis . *vonplesseni* Dyar and Knab
   Palpi short, less than one-fourth the length of proboscis . . *pallidiventer* Theobald
9. Hind tarsi dark . . . . . *fluviatilis* Theobald
   Hind tarsi marked with white at the bases of the joints below, *schedocyclia* Dyar and Knab

MALE HYPOPYGIUM

1. Basal lobes of side-piece short-haired, hairs not approaching tip of side-piece 2
   Setæ of basal lobe long, approaching or equaling tip of side-piece 5
2. Side-piece with three stout setæ at tip of basal excavation in addition to the basal lobes . . . . . { *longipes* Fabricius / *trichopus* Dyar
   Side-piece without this structure 3
3. Side-piece narrow; setæ of basal lobe very small . . . . *leucopus* Dyar and Knab
   Side-piece short and stout; setæ of basal lobe stout and reaching half way to apex of side-piece 4
4. Spines of ninth tergites long and stout . . . . *lampropus* Howard, Dyar, and Knab
   These spines shorter, broadly blade-shaped . . . . . *vonplesseni* Dyar and Knab
5. Basal lobe conical with only three long flattened hairs . . . *fluviatilis* Theobald
   Basal lobe with many long setæ from apex 6
6. These hairs stiff and pointed, moderately long . . . . . *pallidiventer* Theobald
   These hairs long, curving, flattened 7
7. Ninth tergites with six or seven spear-pointed spines . . . . . *lunata* Theobald
   Ninth tergites with ten long spines . . . . . *rapax* Dyar and Knab

The following species are unknown or inadequately described in the male: *Schedocyclia, frontosa,* and *lineata.*

LARVA

1. Fringe of air-tube single 2
   Fringe of air-tube tufted; anal hairs 5+3, 1 . . . . . *longipes* Fabricius

2. Anal hairs 18+1, 1 . . . . . *lunata* Theobald
   Anal hairs 8+1, 1 . . . . . *rapax* Dyar and Knab

The larvæ of the following species are unknown: *Lampropus, schedocyclia, leucopus, trichopus, frontosa, lineata, fluviatilis, vonplesseni,* and *pallidiventer.*

GOELDIA LONGIPES (Fabricius)

CULEX LONGIPES Fabricius, Syst. Antliat., 34, 1805.
LESTICOCAMPA ULOPUS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 137, 1906.
LESTICOCAMPA CULICIVORA Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 207, 1907.
Lesticocampa culicvora and *longipes* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 168 and 172, 1915.
Goeldia longipes Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia longipes Dyar, Ins. Ins. Mens., xi, 84, 1923.
Goeldia longipes Bonne, Ins. Ins. Mens., xi, 129, 1923.
Goeldia longipes Dyar, Ins. Ins. Mens., xi, 174, 1923.
Goeldia longipes Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.
Goeldia longipes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 144, 1925.
Goeldia longipes Dyar, Ins. Ins. Mens., xiii, 128, 1925.

Female—Proboscis long, slender, nearly as long as the abdomen, brownish black. Occiput black with bright metallic blue reflection, silvery in some lights. Prothoracic lobes sparsely clothed with small pale iridescent scales. Mesonotum brown with submetallic blue reflection; pleuræ and coxæ with patches of silvery white scales. Abdomen black dorsally, yellowish silvery ventrally, the colors separated on the sides in a segmentarily undulating line. Legs black with metallic blue reflection; mid tarsi with apical half of second and all of the third and fourth joints white beneath, the last three yellowish white above; hind legs with outstanding scales on outer half of tibia and first to third tarsal joints, especially prominent on second tarsal joint; fourth tarsal joint except at base and fifth joint white. Wing-scales narrowly ovate, denser outwardly on second to fourth veins, all dark.

Male—Palpi about two-thirds as long as the proboscis, very slender. Coloration as in the female. Hypopygium (Plate XXI, Fig. 63): Side-piece long, slender, excavated at the base within, with three stout hairs from the tip of the excavation. Basal lobes well separated from the side-piece, broad, shallow, with many stiff, pointed hairs reaching to the middle of the side-piece. Clasper long, slender, straight, a little widened at base, with small rounded, thick terminal spine. Tenth sternites large, broad, one margin thickened, four sharp teeth at tip. Tenth sternites small, longer than wide, with five long spines which are inserted roundedly over the tip, giving a capitate appearance.

Larva (Plate XXI, Fig. 63)—Head rounded, broader than long; antennæ moderately long, weak, slender. Maxillæ elongate, with small terminal tooth and long appendage; a row of evenly spaced hairs on inner side. Lateral comb of the eighth segment of about twelve teeth in an open patch, separate. Air-tube long, flared at base, slender outwardly, about five times as long as wide, densely spicular; three fine hairs on dorsal aspect near tip; a row of densely placed tufts of three or four long hairs each along the ventral line, forming a long posterior fringe. Anal segment longer than wide, with a large dorsal plate; dorsal tuft of eight (3+5) long hairs on each side; lateral hair long, single; subventral tufts in six on each side, rather long.

The young larva is worthy of mention on account of the peculiar maxillæ. They are elongate and the tip is extended in a long whip-lash more than the diameter of the head laterally. There is no terminal tooth as in the adult larva.

Nicaragua, Guatemala, Panama, Venezuela, and Surinam, probably the whole south Carribean coast.

The larvæ are predacious upon sabethid larvæ living in heliconias, *Colocasia,* and Araceæ.

GOELDIA TRICHOPUS (Dyar)

LESTICOCAMPA TRICHOPUS Dyar, Ins. Ins. Mens., vii, 10, 1919.
Goeldia trichopus Dyar, Ins. Ins. Mens., ix, 27, 1921.
Goeldia trichopus Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia trichopus Bonne, Ins. Ins. Mens., xi, 128, 1923.
Goeldia trichopus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.
Goeldia trichopus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 141, 1925.

Female—Proboscis long, slender, nearly as long as the abdomen, brownish black. Occiput with black scales with blue reflection, silvery white in some lights. Prothoracic lobes sparsely clothed with small pale, iridescent scales. Mesonotum brown with submetallic blue reflection; pleuræ and coxæ with patches of silvery white scales. Abdomen black dorsally, yellowish silvery ventrally, the colors separated on the sides in a segmentarily undulating line. Legs black with metallic blue reflection; mid tarsi with second to fourth joints white all around; hind legs with raised scales on outer half of tibia and first to third tarsal joints, especially prominent on apex of second and base of third tarsals; extreme tip of third, fourth, and fifth joints white. Wing-scales narrowly ovate, denser toward the tips of the second to fourth veins, all dark.

Male—Coloration as in the female. Hypopygium: Described by Dr. Bonne from a Surinam specimen as follows: Side-piece long and slender, about four times as long as wide; a group of closely placed long stiff hairs near base. Basal lobes large, conically pointed, densely covered with long hairs. Clasper moderate, the base inflated, with terminal appendage. Tenth sternites with thickened inner margin and a few strong curved teeth at tip. Lobes of ninth tergites capitate with six long, coarse, spine-like bristles.

Larva—Unknown.

Brazil (Amazonas) and Surinam.

Doubtfully distinct from *longipes.* Perhaps the Surinam specimens are a variety of *longipes* while the Amazonas form may be different. A definite reference to synonymy is not made, pending material from the type locality.

GOELDIA LEUCOPUS (Dyar and Knab)

LESTICOCAMPA LEUCOPUS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 137, 1906.
Lesticocampa leucopus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 170, 1915.
Goeldia leucopus Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 17, 1921.
Goeldia leucopus Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia leucopus Dyar, Ins. Ins. Mens., xi, 86, 1923.
Goeldia leucopus Dyar, Ins. Ins. Mens., xi, 174, 1923.
Goeldia leucopus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.

Goeldia leucopus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 152, 1925.
Goeldia leucopus Dyar, Ins. Ins. Mens., xiii, 129, 1925.

Female—Proboscis long, slender, nearly as long as the abdomen, brownish black. Palpi about one-fifth as long as the proboscis. Occiput black with metallic blue reflection, strongly silvery in some lights. Prothoracic lobes clothed sparsely with small silvery scales. Mesonotum with grayish brown scales with submetallic purplish reflection; pleuræ and coxæ with patches of silvery white scales. Abdomen black above, golden yellow below, the colors separated on the sides in a line indented on fifth, sixth and seventh segments. Legs black with purple metallic reflection; mid tarsi with the last three joints and apex of second joint yellowish silvery, white below; hind tarsi with apical third of fourth and all of fifth joints white; no raised scales. Wing-scales narrowly ovate, denser toward the tips of second to fourth veins, all dark.

Male—Palpi about two-thirds as long as the proboscis, very slender. Coloration as in the female. Hypopygium (Plate XXII, Fig. 66): Side-piece long and slender, about four times as long as wide, expanded a little in the middle. Basal lobes rounded, shallow, furnished with many short stiff hairs. Clasper flared at base, long, very slender, with short rounded terminal appendage. Tenth sternites large, the inner margin thickened, the tip with five sharp teeth. Ninth tergites narrow, longer than wide, the tip rounded capitate with five long spines.

Larva—Unknown.

Nicaragua (Bluefields) and Panama (Bocas del Toro).

This very local species is allied to *longipes*, differing in genitalic structure. No recent collections from the region where it occurs have been had.

GOELDIA LAMPROPUS (Howard, Dyar, and Knab)

Lesticocampa lampropus Howard, Dyar and Knab, Mosq. No. and Cent. Am. and W. I., iii, 167, 1915.
Goeldia lampropus Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 17, 1921.
Goeldia lampropus Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia lampropus Dyar, Ins. Ins. Mens., xi, 87, 1923.
Goeldia lampropus Dyar, Ins. Ins. Mens., xi, 174, 1923.
Goeldia lampropus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.
Goeldia lampropus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 148, 1925.
Goeldia lampropus Dyar, Ins. Ins. Mens., xiii, 129, 1925.

Female—Proboscis nearly as long as the abdomen, black with submetallic blue reflection. Palpi one-fourth as long as the proboscis. Occiput black with metallic blue reflection, silvery in some lights. Prothoracic lobes sparsely clothed with small silvery scales. Mesonotum with dark brown scales with slight bronzy luster; pleuræ and coxæ with patches of silvery white scales. Abdomen black with blue reflection above, pale golden below, the colors separated on the sides which is slightly indented at the middle of each of the last three segments. Legs dark brown with violet and bronzy reflections; mid tarsi with tip of second joint and all of the third and fourth silvery white on the outer side. Wing-scales small but rather broadly ovate, all dark.

Male—Palpi about three-fourths as long as the proboscis, very slender. Coloration as in the female. Hypopygium (Plate XXII, Fig. 69): Side-

piece rather stout, conical, scaled without, and with many short hairs. Basal lobes rounded, with many rather long, stiff hairs that reach to the middle of the side-piece. Clasper long and slender. Tenth sternites large, broad, the inner margin thickened, the tips with four claw-like teeth. Ninth tergites large, quadrate, each with eight long and rather slender spines.

Larva—Undescribed.

Panama.

The larva of this species is predacious upon the larvæ of *Joblotia digitata*, eating both larvæ and pupæ. It lives with them and closely resembles them in appearance. The host occurs from Mexico to Brazil, being common in coconut plantations, and the parasite possibly follows its host, but it has been detected only in Panama.

GOELDIA LINEATA (Peryassú)

RUNCHOMYIA LINEATA Peryassú, Os Culic. do Braz., 266, 1908.
Runchomyia lineata Theobald, Mon. Culic., v, 555, 1910.
Binotia lineata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 230, 1911.
Goeldia (Goeldia) lineata Dyar, Ins. Ins. Mens., xi, 88, 1923.
Goeldia lineata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 156, 1925.

Female—Unknown.

Male—Proboscis 3 mm. long (as long as the abdomen), dark brown. Palpi exceeding the proboscis. Occiput with yellowish scales in the middle. Mesonotum with dark scales, a longitudinal line of yellow ones in the middle. Abdomen dark purplish above, yellow below. Legs dark brown with bronzy reflection. Wing-scales rather broadly ovate. Hypopygium: Undescribed.

Larva—Unknown.

Brazil.

Known only in a single specimen in bad condition. The species, however, should be easily recognizable with the peculiar thoracic ornamentation.

GOELDIA FRONTOSA (Theobald)

RUNCHOMYIA FRONTOSA Theobald, Mon. Culic., iii, 319, 1903.
Binotia frontosa Blanchard, Les. Moust., 427, 1905.
Runchomyia frontosa Theobald, Mon. Culic., v, 555, 1910.
Binotia frontosa Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 229, 1911.
Goeldia frontosa Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 15, 1921.
Goeldia frontosa Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia frontosa Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 153, 1925.

Female—Proboscis very long, as long as thorax and abdomen, dark brown. Occiput with brown and violet scales. Mesonotum with dark brown scales, the scutellar scales with blue and violet reflection; pleuræ and coxæ with white scales. Abdomen black above, pale below, the colors separated on the sides in a straight line. Legs with dark brown scales with violet reflections. Wing-scales narrowly ovate, all dark.

Male—Unknown.

Larva—Unknown.

British Guiana.

Described by Theobald from two females captured in the interior by Dr. Low. The species has not been seen since.

GOELDIA LUNATA (Theobald)

WYEOMYIA LUNATA Theobald, Mon. Culic., ii, 279, 1903.
Joblotia lunata Theobald, Mon. Culic., iii, 336, 1903.
Joblotia lunata Blanchard, Les. Moust., 429, 1905.
Joblotia lunata Theobald, Mon. Culic., iv, 594, 1907.
Joblotia lunata Peryassú, Os Culic. do Braz., 276, 1908.
Trichoprosopon lunata Theobald, Mon. Culic., v, 557, 1910.
Joblotia lunata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 232, 1911.
Lesticocampa lunata Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 165, 1915.
Goeldia lunata Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 12, 1921.
Goeldia lunata Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia lunata Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.
Goeldia lunata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No xxi, Afd. Trop. Hyg. No. 13, 153, 1925.

Female—Proboscis long and slender, nearly as long as the abdomen, black with bronzy reflection. Palpi less than one-sixth as long as the proboscis. Occiput black-scaled with a blue reflection. Prothoracic lobes sparsely covered with small silvery scales. Mesonotum with dark brown scales with slight bronzy reflection; pleuræ and coxæ with silvery scales. Some metallic-green scales on the scutellum. Abdomen black above with strong blue reflection, yellowish white below, the colors separated on the sides in an irregular line, the pale color incising the black roundedly near the middle of each segment. Legs black with bronzy and blue reflection. Wing-scales narrowly ovate, almost linear, broader and denser outwardly on second to fourth veins.

Male—Palpi three-quarters or more as long as the proboscis. Coloration as in the female. Hypopygium (Plate XXI, Fig. 64): Side-piece conical, rather stout, with hairs and scales. Basal lobe conical, narrow but easily broadly appressed, with minute hairs basally, apically with many very long, curving, flattened hairs which are longer than the end of the side-piece. Clasper very long, slender, curved, the apical spine short but pointed. Tenth sternites large, long, one margin thickened, ending in about four teeth. Ninth tergites broad, quadrate, each with about six long stiff spines.

Larva (Plate XXI, Fig. 64)—Head rounded; antennæ slender; head-hairs single. Maxilla with a long horn and still longer appendage at tip; eight teeth within and five slender hairs. Lateral comb of the eighth segment of many spines in a patch about three rows deep. Air-tube gently tapered, about five times as long as wide; a long fringe of delicate single hairs along the posterior margin. Anal segment as long as wide, the plate reaching the middle of the sides. Dorsal tuft a brush of about eighteen hairs and a single long hair on each side; lateral hair single, not long; subventral tuft of about ten long hairs on each side. Anal gills longer than the segment, rounded at tip.

Brazil. Rio de Janeiro, Brazil, May 26, 1925 (F. M. Root); Magé, Brazil, May 26, 1925 (F. M. Root); Iguazu, Misiones, Argentina, October 1927 (R. C. Shannon).

The larvæ are predacious upon sabethid and *Culex* larvæ living in the water in the leaf-bases of Bromeliaceæ.

GOELDIA RAPAX (Dyar and Knab)

LESTICOCAMPA RAPAX Dyar and Knab, Proc. Biol. Soc. Wash., xix, 137, 1906.
Lesticocampa rapax Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 164, 1915.

Goeldia rapax Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 18, 1921.
Goeldia rapax Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia rapax Dyar, Ins. Ins. Mens., xi, 87, 1923.
Goeldia rapax Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.
Goeldia rapax Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 148, 1925.

Female—Proboscis long and slender, nearly as long as the abdomen, black with bronzy reflection. Palpi less than one-sixth as long as the proboscis. Occiput black-scaled with a blue reflection. Prothoracic lobes sparsely covered with small silvery scales. Mesonotum with dark brown scales with slight bronzy reflection; pleuræ and coxæ with silvery scales. Some metallic green scales on the scutellum. Abdomen black above with strong blue reflection, yellowish white below, the colors separated on the sides in an irregular line, the pale color incising the black roundedly near the middle of each segment. Legs black with bronzy and blue reflection. Wing-scales narrowly ovate, almost linear, broader and denser outwardly on second to fourth veins.

Male—Palpi three-quarters or more as long as the proboscis. Coloration as in the female. Hypopygium (Plate XXII, Fig. 67): Side-piece conical, rather stout, with hairs and scales. Basal lobe conical, narrow but easily broadly appressed, with minute hairs basally, apically with many very long, curving, flattened hairs which are longer than the end of the side-piece. Clasper very long, slender, curved, the apical spine short but pointed. Tenth sternites large, long, one margin thickened, ending in about eight teeth. Ninth tergites broad, quadrate, each with about ten long stiff spines.

Larva (Plate XXII, Fig. 67)—Head rounded quadrate, longer than wide. Antennæ slender, about half as long as the maxillæ. Maxilla elongate-conical, a short horn and elongate appendage at tip; some hairs inwardly toward tip. Lateral comb of the eighth segment of two rows of separated spines. Air-tube slender, slightly tapered, minutely spicular, a fringe of very long, fine, single hairs along the posterior margin. Anal segment as long as wide, dorsal plate reaching well down the sides; dorsal tuft a long hair and brush on each side; lateral hair single, long; subventral tuft in eight on each side; very long and prominent. Anal gills very long, evenly tapered to a pointed tip.

Trinidad.

The larvæ are predacious upon those of sabethids and *Culex* inhabiting the water in the leaf-bases of Bromeliaceæ.

This form is closely allied to *lunata* of Brazil. The differences observable in the male hypopygium are that the tenth sternites and ninth tergites have more teeth in the Trinidad form. The larvæ also show some small differences.

GOELDIA VONPLESSENI (Dyar and Knab)

Lesticocampa vonplesseni Dyar and Knab, Proc. Biol. Soc. Wash., xix, 137, 1906.
Hyloconops longipalpis Theobald, Mon. Culic., iv, 588, 1907.
Hyloconops longipalpis Peryassú, Os Culic. do Braz., 267, 1908.
Hyloconops longipalpis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 235, 1911.
Hyloconops longipalpis Lutz, Mem. Inst. Osw. Cruz, x, 87, 1919.
Hyloconops longipalpis Dyar, Ins. Ins. Mens., vii, 9, 1919.
Goeldia longipalpis Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 13, 1921.
Goeldia vonplesseni Dyar, Ins. Ins. Mens., ix, 27, 1921.
Goeldia vonplesseni Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia vonplesseni Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.

Goeldia vonplesseni Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 147, 1925.

Female—Proboscis moderate, distinctly shorter than the abdomen, black with slight blue reflection. Palpi long, nearly one-third as long as the proboscis. Occiput with black scales with blue reflection and strong silvery sheen. Prothoracic lobes with small, sparse, silvery scales. Mesonotum dark brown; pleuræ and coxæ with silvery scales; some metallic green scales on the scutellum. Abdomen black above with blue reflection, pale golden below, the colors separated on the sides in an irregular line, forming little notches in the centers of the posterior segments. Legs black with blue and bronzy reflections. Wing-scales narrowly ovate, broader and denser toward the tips of second to fourth veins.

Male—Palpi slender, pointed, not as long as proboscis. Coloration as in the female. Hypopygium: Side-piece short and stout, broadly rounded at tip; basal lobe broad, low, with many setæ, the central ones long and reaching beyond the middle of side-piece. Clasper long and slender, with long, sharp, nearly terminal spine. Tenth sternites long, narrow, with five claw-like spines at tip. Ninth tergites very broad, stout, quadrate, with six or seven stout, blade-like spines in a nearly straight row. Mesosome broadly triangular, of two thin plates that meet in a point.

Larva—Unknown.

Brazil, Peru (Pastazza, Superior River), Venezuela (Ocumare de la Costa and Choroní).

Bred from bamboo and *Heliconia (Bihai)*, the latter probably the normal habitat, probably predacious upon the other mosquito larvæ in these plants, principally *Dendromyia (Decamyia) felicia* (M. Núñez Tovar).

GOELDIA PALLIDIVENTER (Theobald)

Hyloconops pallidiventer Theobald, Mon. Culic., iv, 586, 1907.
Hyloconops pallidiventer Peryassú, Os Culic. do Braz., 269, 1908.
Hyloconops pallidiventer Theobald, Mon. Culic., v, 558, 1910.
Hyloconops pallidiventer Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 234, 1911.
Goeldia pallidiventer Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 15, 1921.
Goeldia pallidiventer Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia pallidiventer Dyar, Ins. Ins. Mens., xi, 87, 1923.
Goeldia pallidoventer Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.
Goeldia pallidoventer Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 155, 1925.

Female—Proboscis moderate, distinctly shorter than the abdomen, dark brown with blue reflection. Palpi short, less than one-fourth as long as the proboscis. Occiput with dark scales, showing a strong silvery white reflection in certain lights. Prothoracic lobes with small, sparse silvery scales. Mesonotum dark brown; pleuræ and coxæ with silvery scales; scutellum with metallic green scales. Abdomen black above with strong violet-blue reflection, yellowish white below, the white incising the black roundedly and strongly intersegmentally, forming large white spots posteriorly on the segments and small ones anteriorly. Legs black with strong violet and bronze reflections. Wing-scales rather broadly ovate.

Male—Palpi about two-thirds as long as the proboscis, very slender. Coloration as in the female. Hypopygium (Plate XXII, Fig. 68): Side-piece conical, stout, with scales and hairs. Basal lobes conical, appearing

narrow or broad, with short hairs basally and a number of long sharp-tipped ones apically that reach near to but do not exceed the apex of the side-piece. Clasper long, slender, curved, a pointed terminal spine. Tenth sternites large, inner margin thickened, tip stout, with four sharp teeth. Ninth tergites broad, short, quadrate, with seven or eight rather short spear-shaped spines.

Larva—Unknown.

Habits unknown.

Brazil, Argentina (Iguazu, Misiones, R. C. Shannon).

GOELDIA FLUVIATILIS Theobald

Goeldia fluviatilis Theobald, Mon. Culic., iii, 330, 1903.
Goeldia fluviatilis Blanchard, Les Moust., 430, 1905.
Goeldia fluviatilis Peryassú, Os Culic. do Braz., 279, 1908.
Goeldia fluviatilis Theobald, Mon. Culic., v, 573, 1910.
Goeldia fluviatilis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 236, 1911.
Goeldia fluviatilis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 185, 1915.
Lesticocampa moralesi Dyar and Knab, Ins. Ins. Mens., vii, 3, 1919.
Goeldia fluviatilis Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 16, 1921.
Goeldia fluviatilis Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.
Goeldia fluviatilis Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.
Goeldia fluviatilis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 155, 1925.

Female—Proboscis moderate, considerably shorter than the abdomen, black, without metallic reflection. Palpi long, one-third the length of the proboscis or over. Occiput with dark brown scales, a strong whitish shade at vertex. Prothoracic lobes with small, sparse white scales on a dark ground. Mesonotum with dark brown scales, scutellum concolorous; pleuræ and coxæ with small white scales. Abdomen black above with slight blue reflection, pale golden below, the pale color incising the dark roundedly on the segments posteriorly. Legs dark brown with bronzy and blue reflection; a white spot at end of hind femur; a white spot at outer third of hind tibia. Wing-scales rather broadly ovate, all dark.

Male—Palpi slender, about as long as the proboscis. Coloration as in the female. Hypopygium (Plate XXII, Fig. 65): Side-piece conical, delicate, with scales and hairs. Basal lobes small, conical, with three long, flattened hairs from tip, reaching nearly to end of side-piece; other hairs small. Clasper long, slender, with long terminal spine, nearly one-third the length of clasper. Tenth sternites narrow, thickened on inner margin, with small terminal teeth. Ninth tergites broad, thin, with seven or eight rather short stout spear-tipped spines.

Larva—Unknown.

Habits unknown.

Brazil and Guatemala. This disjointed distribution suggests the existence of two species; but no differences are obvious in the adults.

GOELDIA SCHEDOCYCLIA (Dyar and Knab)

Lesticocampa schedocyclia Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 64, 1908.
Lesticocampa schedocyclia Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 174, 1915.
Goeldia schedocyclia Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 17, 1921.
Goeldia schedocyclia Bonne-Wepster and Bonne, Ins. Ins. Mens., x, 38, 1922.

Goeldia schedocyclia Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 151, 1925.
Goeldia schedocyclia Dyar, Ins. Ins. Mens., xiii, 129, 1925.

Female—Proboscis moderate, considerably shorter than the abdomen, black, without metallic reflection. Palpi long, one-third the length of the proboscis or over. Occiput with dark brown scales, a strong whitish shade at vertex. Prothoracic lobes with small sparse white scales on a dark ground. Mesonotum with dark brown scales, scutellum concolorous; pleuræ and coxæ with small white scales. Abdomen black above with slight blue reflection, pale golden below, the pale color incising the dark roundedly on the segments posteriorly. Legs dark brown with bronzy and blue reflection; a white spot at end of hind femur; a white spot at outer third of hind tibia; hind tarsi with broad white marks at the bases of the joints beneath. Wing-scales rather broadly ovate, all dark.

Male—Unknown.

Larva—Unknown.

Habits unknown.

Guatemala.

This species is evidently allied to *fluviatilis (moralesi)*, which occurs in the same region. It is larger, and the white marks on the hind tarsi below are characteristic.

Genus JOBLOTIA Blanchard

Trichoprosopon Theobald (not *Trichoprosopus* Macq.), Mon. Culic., ii, 283, 1901.
Joblotia Blanchard, C. R. Soc. de Biol., liii, 1046, 1901.

Pronotal setæ present; clypeus setose.

A small genus of but three known species. The adults are diurnal and crepuscular, and approach conspicuously to bite with the white-tipped legs extended. One species is common about plantations, the larvæ frequent in broken coconuts which have become filled with water and are decaying. Another is confined to bamboo and is less often seen.

Table of Species

1. All tarsi white-marked . . . . . *splendens* Peryassú
   Mid and hind tarsi white-marked 2
2. Clypeus with marginal row of setæ; a white spot at knee . . . . *digitata* Rondani
   Clypeus with setæ on the sides only, not in front; no white knee-spot, *compressa* Theobald

MALE HYPOPYGIUM

1. Spines of ninth tergites short and stout, not longer than the basal lobe of side-piece . . . . . *digitata* Rondani
   These spines long, three times as long as the basal lobe of side-piece, *compressa* Theobald

The following species is unknown in the male: *Splendens*.

LARVA

1. Maxillæ concealed . . . . . *digitata* Rondani
   Maxillæ projecting . . . . . *compressa* Theobald

The following species is unknown in the larva: *Splendens*.

JOBLOTIA SPLENDENS (Peryassú)

Trichoprosopon splendens Peryassú, Os Culic. do Braz., 270, 1908.
Trichoprosopon splendens Theobald, Mon. Culic., v, 556, 1910.

Joblotia splendens Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 231, 1911.
Joblotia splendens Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 161, 1925.

Female—Proboscis moderate. Occiput with black scales with blue reflection, becoming silvery on the sides below. Mesonotum with dark brown scales with greenish and bronzy reflection; pleuræ and coxæ with white scales. Postnotum with two rows of small white scales. Abdomen metallic blue above with bronzy reflection, pale golden below, the colors separated on the sides in an irregular line. Legs dark brown with bronzy and blue reflections; fore tarsi with the last three joints white and golden mixed with blue; mid tarsi with last four joints and tip of the first entirely white; hind femur with white scales at the base beneath, tarsi with tip of the second, third to fifth joints white; on the inner side of tibia are long raised scales, extending on the first tarsal joint, as in some *Goeldia*. Wing-scales rather broadly ovate, all dark.

Male—Palpi about as long as the proboscis, slender. Hypopygium undescribed.

Larva—Unknown.

Brazil.

JOBLOTIA DIGITATA (Rondani)

Culex digitatus Rondani, Baudi e Truqui, Studi Ent., 109, 1848.
Trichoprosopon nivipes Theobald, Mon. Culic., ii, 285, 1901.
Joblotia nivipes Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 233, 1911.
Joblotia digitatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 176, 1915.
Trichoprosopon wilsoni Ludlow, Psyche, xxv, 66, 1918.
Joblotia digitatus Pawan, Ins. Ins. Mens., x, 63, 1922.
Joblotia digitatus Dyar, Ins. Ins. Mens., xi, 175, 1923.
Joblotia digitatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 158, 1925.
Joblotia digitatus Dyar, Ins. Ins. Mens., xiii, 28, 1925.
Joblotia digitata Dyar, Ins. Ins. Mens., xiii, 130, 1925.

Female—Proboscis moderate, rather long, blue-black. Palpi one-fifth as long as proboscis. Clypeus with a dense fringe of coarse hairs. Occiput with black scales with bright blue or silvery reflection. Prothoracic lobes with shining silvery scales. Mesonotum with brownish black scales; pleuræ and coxæ with silvery scales. Abdomen black with green and blue reflection above, pale golden below, the colors separated on the sides in an undulating line. Legs black with strong violet and coppery reflection; mid tarsi with the last four joints white, the fifth blackish at tip; hind tibia rather broadly white at the base and also at base of first tarsal joint, tip of third joint and last two tarsals white. Wing-scales rather broadly ovate, all dark.

Male—Palpi nearly as long as the proboscis, slender. Coloration as in the female. Hypopygium (Plate XXIII, Fig. 71): Side-piece stout, conical, with scales and many stout hairs; basal lobes rounded, with stiff, sharp hairs at the summit, which reach about to middle of side-piece. Tenth sternites narrow, stout, one margin thickened, ending in about six sharp teeth. Ninth tergites joined, forming a mass of short, stout spines three rows deep.

Larva (Plate XXIII, Fig. 71)—Head subquadrate rounded; antennæ

small. Eighth segment with a stout seta from a large tubercle; no comb. Air-tube stout, twice as long as wide; a single large hair-tuft before the middle. Anal segment as long as wide, expanded outwardly, dorsal plate extending well down the sides. Dorsal tuft of four long hairs on each side; lateral hair single, long; subventral tuft of two long hairs, connected by a curved chitinous band to its fellow on the other side. Anal gills large, broad, twice as long as the segment, conspicuously tracheate.

Mexico, Salvador, Costa Rica, Panama, Ecuador, Venezuela, Trinidad, the Guianas, and Brazil.

The fat white larvæ are frequent in the foul water in decaying coconut and cacao shells. The adults are said not to bite. The eggs are deposited in boat-shaped masses on the water in the husks.

JOBLOTIA COMPRESSA (Theobald)

Trichoprosopon compressum Theobald, Mon. Culic., iv, 590, 1907.
Joblotia trichorryes Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 206, 1907.
Joblotia mogilasia Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 206, 1907.
Trichoprosopon compressum Peryassú, Os Culic. do Braz., 274, 1908.
Trichoprosopon compressum Theobald, Mon. Culic., v, 557, 1910.
Joblotia compressum Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 233, 1911.
Joblotia mogilasia and *trichorryes* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 181 and 183, 1915.
Joblotia trichorryes and *mogilasia* Dyar, Ins. Ins. Mens., xi, 175, 1923.
Joblotia trichorryes and *mogilasia* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 157 and 158, 1925.
Joblotia compressa Dyar, Ins. Ins. Mens., xiii, 131, 1925.

Female—Proboscis rather long, moderate, blue-black. Palpi one-fifth as long as the proboscis. Clypeus with a slight fringe of coarse hairs on the sides, nearly absent in front. Occiput with black scales with blue reflection, silvery in some lights. Prothoracic lobes with shining silvery scales. Mesonotum with bronzy black scales; pleuræ and coxæ with silvery scales. Abdomen black above with green and blue reflection, venter pale golden, the colors separated on the sides in an undulating line. Legs black with violet and blue reflections; mid tarsi with the four terminal joints white, the last one with blackish tip; hind tarsi with apical half of third, fourth, and fifth joints white. Wing-scales rather broadly elliptical, all dark.

Male—Palpi four-fifths as long as the proboscis. Coloration as in the female. Hypopygium (Plate XXIII, Fig. 70): Side-piece stout, conical, with many hairs and a few scales outwardly. Basal lobes rounded, with long terminal hairs reaching the middle of the side-piece. Clasper long, slender, with long terminal spine. Tenth sternites large, wide, one margin thickened, tips with several short teeth. Ninth tergites broad, rounded quadrate, with six or seven long, wide, pointed spines on each.

Larva (Plate XXIII, Fig. 70)—Head rounded, somewhat pointed before; head-hairs single. Eighth segment with a rounded chitinous plate with a stout seta. Air-tube subfusiform, widened at basal third, two and a half times as long as wide; a large tuft posteriorly. Anal segment longer than wide, with a large dorsal plate; dorsal tuft of two long hairs on each side; lateral hair single, long; subventral tuft of two long hairs, connected by a curved chitinous band to its fellow in the other side. Anal gills twice as long as the segment, stout, with rounded tips.

Panama, Venezuela, Brazil.

The larvæ occur in cut or broken bamboo stems containing water, and apparently have no other habitat. The eggs are laid singly on the surface of the water. The larval development is very rapid. Dr. M. Núñez T. sent me three females taken with many *digitata* at Ocumare de la Costa, Venezuela, April 12, 1927.

Tribe CULICINI

Culicini Dyar, Proc. U. S. Nat. Mus., lxii, 7, 1922.
Culicini Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.

A large tribe of mosquitoes, to which the bulk of all the species belong. A few species do not bite warm-blooded animals and are therefore not to be counted as enemies of man; but the great majority do bite, and to this group belong most of the troublesome species and a few important disease carriers. The larval habitat is not confined to restricted spaces as with the Sabethini preceding, but the majority of the species breed in ground-pools, marshes, or flood-water, and under favorable conditions may appear in incredible numbers. The species of the *Culex* type breed generally in permanent or long-standing water, and this group is dominant in the tropics. The species of the *Aëdes* type, however, favor temporary pools, such as left by rain and particularly by melting snow in the spring. These species, while not absent in the tropics, find optimum conditions in north temperate and arctic regions. There is great diversity in habit among the minor members of the tribe, all sorts of water being resorted to, even that in crab-holes, and the tissues of plants also inhabited by the Sabethini. Naturally species restricted to these localized breeding-places are of no more economic importance than the Sabethini themselves.

Genus PSOROPHORA Robineau-Desvoidy

Psorophora Robineau-Desvoidy, Mem. Soc. Nat. Hist., Paris, iii, 412, 1827.
Janthinosoma, Lynch Arribálzaga, Rev. Mus. de La Plata, i, 374, 1891.
Conchyliastes, Howard, Mosq., 3 ed., 155, 1902.
Grabhamia Theobald, Mon. Culic., iii, 243, 1903.
Feltidia Dyar, Proc. Ent. Soc. Wash., viii, 45, 1905.
Ceratocystia Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 178, 1906.
Lepidosia Coquillett, Science, n. s., xxiii, 314, 1906.
Psorophora Dyar, Proc. U. S. Nat. Mus., lxii, 32, 1922.
Psorophora Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 484, 1924.
Psorophora Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 332, 1925.

Post-spiracular setæ present; spiracular setæ present.

A genus of large, showy mosquitoes, some adorned with raised scales and white leg-markings. The species are fierce biters, but there are no disease carriers in the group. The group is dominant in the tropics, but extends into temperate regions both north and south. The species are adapted to breed in the most transient of rain-water; the eggs have a spinose protecting coat, and may lie on the dry ground for months or years, hatching on the advent of water. The species of the subgenus *Psorophora* are predacious in the larval state, feeding only on other mosquito larvæ which are present with them and hatch at the same time. The other subgenera, *Janthinosoma* and *Grabhamia*, have vegetable-feeding larvæ. With these habits, the genus is dominant and conspicuous in semiarid regions, such as

the upper Mississippi Valley in North America and the Paraná Valley and perhaps other rivers in South America. The predacious species range throughout the tropical jungles.

Table of Species

ADULT

1. Mesonotum with smooth nude areas *(Psorophora)* 2
   Mesonotum uniformly scaled, sometimes sparsely 7
2. Tarsi dark 3
   Tarsi white-ringed at the bases of the joints 5
3. Large black species, the hind legs more or less distinctly ciliate 4
   Smaller green or bluish species, the legs not ciliate . . . . . *howardii* Coquillett
4. More ciliate, metallic mixed; white scales of pleura evenly distributed, *cilipes* Fabricius
   Less ciliate; non-metallic; white scales of pleura in patches . . *lineata* Humboldt
5. Yellowish; tarsi and proboscis pale yellow with sparse raised dark scales, *pallescens* Edwards*
   Tarsi blackish, with distinct white rings at the bases of the joints 6
6. Mesonotum with a central yellow line . . . . . *ciliata* Fabricius
   Mesonotum without central yellow line, the scales dark, *holmbergii* Lynch Arribálzaga
7. Claws of the female toothed; dark-colored species with dark-scaled wings; hind tarsi sometimes white-tipped *(Janthinosoma)* 8
   Claws of female simple; gray species, the wings often peppered with white scales *(Grabhamia)* 17
8. Hind tarsi with white on the last joint 9
   Hind tarsi with the last joint dark, white if present on the fourth joint only . 13
9. Mesonotum with small yellowish scales only 10
   Mesonotum with whitish scales on the sides, dark ones in the middle 12
10. Larger species; hind legs generally with well marked raised scales, *ferox* Humboldt
    Smaller species; hind legs without distinct raised scales 11
11. Fourth hind tarsal joint distinctly white at base . . . . . *fiebrigi* Edwards
    This joint only indistinctly white at base beneath . . . . . *mexicana* Bellardi
12. Scutellum dark-scaled in the female . . . . . *lutzii* Theobald
    Scutellum with yellowish scales . . . . . *champerico* Dyar and Knab
13. Hind tarsi with white on the fourth joint 14
    Hind tarsi without white . . . . . *cyanescens* Coquillett
14. Mesonotum with small yellowish scales, sometimes thicker at the margins but without black scales centrally 15
    Mesonotum with dark scales centrally, a band of whitish ones at each side; hind femur white-tipped . . . . . *varipes* Coquillett
15. Basal half of fourth hind tarsal joint white; from Argentina and Brazil, *discrucians* Walker
    Fourth hind tarsal nearly all white 16
16. Hind femur distinctly white-tipped; from the Greater Antilles, *johnstonii* Grabham
    Hind femur indistinctly white-tipped; from the Bahamas . *coffini* Dyar and Knab
17. Wings with whitish and dark scales 18
    Wings with dark scales only 24
18. The dark scales gathered into spots on certain parts of the wing 19
    Without spottings, uniformly peppered 21
19. A spot at base of third vein which is dark; costa unmarked . . *varinervis* Edwards
    Spottings on costa; third vein not all dark 20

* ***Marmorata*** **Philippi may also fall here.**

20. Wing with the costa pale and two black spots beyond middle, *signipennis* Coquillett
Wings with a single white mark on the costa . . . . . *discolor* Coquillett
Wings with scattered black spots, the three largest on costa . . *chilensis* Blanchard
Costa and first vein continuously dark . . . . . *paulli* Shannon and Del Ponte

21. Larger; femora and tibiæ distinctly white-speckled; tarsal white rings wide . 22
Smaller; femora and tibiæ scarcely white-speckled; tarsal rings narrow . . . 23

22. From continental America, Argentina to Colombia . . *confinnis* Lynch Arribálzaga
From Mexico . . . . . *tolteca* Dyar and Knab
From Jamaica, Santo Domingo, and Porto Rico . . . . . *jamaicensis* Theobald
From Cuba, Florida, and southern United States to New York, *columbiæ* Dyar and Knab

23. Mesonotum silvery-shaded and mottled with brown spots . . . . *pygmæa* Theobald
Mesonotum uniformly dull silvery-scaled . . . . . *insularius* Dyar and Knab

24. From continental America, Brazil to Panama . . . . . *cingulata* Fabricius
From Santo Domingo . . . . . *infinis* Dyar and Knab

MALE HYPOPYGIUM

1. Clasper slender with expanded tip or bilobed *(Psorophora)* 2
Clasper strongly inflated with spine at tip 5

2. Clasper with a long point before tip and sac-like expansion about middle, *howardii* Coquillett
Clasper slender, curved, angularly expanded at tip 3

3. Claspette expanded and setose at tip, one seta at the margin stronger than the rest . . . . . *lineata* Humboldt
Claspette with rounded setose tip; a large curled filament detached from the setæ 4

4. Mesosome a basal cylinder . . . . . { *cilipes* Fabricius / *ciliata* Fabricius }
Mesosome with sharp subapical outward point . . . . . *pallescens* Edwards

5. Claspette generally free of side-piece, if not free with a narrowly produced angle and terminal blade-like setæ *(Janthinosoma)* 6
Claspette soldered to the side-piece, its appendages setaform *(Grabhamia)* . . 8

6. Claspete free of side-piece, with two terminal appendages and setæ 7
Claspette attached to side-piece, the appendages all similar . . *cyanescens* Coquillett

7. Terminal appendages of claspette both distorted, the claspette gently curved, slender . . . . . { *ferox* Humboldt / *lutzii* Theobald / *champerico* Dyar and Knab / *coffini* Dyar and Knab }
Claspette bent nearly at right angles in the middle; one of the terminal appendages simple . . . . . *fiebrigi* Edwards
Claspette straight, rigid; terminal appendages small and scale-like, recurved, *varipes* Coquillett

8. Claspette almost completely absorbed into the side-piece . . . *signipennis* Coquillett
Claspette or its setæ more or less distinct 9

9. Claspette with seven setæ . . . . . { *cingulata* Fabricius / *tolteca* Dyar and Knab }
Claspette with six setæ . . . . . { *confinnis* Lynch Arribálzaga / *columbiæ* Dyar and Knab }
Claspette with five setæ . . . . . { *jamaicensis* Theobald / *infinis* Dyar and Knab / *discolor* Coquillett }
Claspette with four setæ . . . . . *pygmæa* Theobald
Claspette with two or three setæ . . . . . *insularius* Dyar and Knab

The following species are unknown in the male: *Holmbergii, marmorata, mexicana, discrucians, johnstonii, paulli, varinervis,* and *chilensis.*

LARVA

1. Mouth-brushes well separated, prehensile 2
   Mouth-brushes normal 5
2. Air-tube pecten running far beyond the middle, the tuft subapical, *cilipes* Fabricius
   Air-tube pecten to about middle, the tuft within outer third 3
3. Air-tube long, over five times as long as wide . . . . . *lineata* Humboldt
   Air-tube shorter, four times as long as wide 4
4. Hairs of the air-tube pecten long, six times the body of the scale, *ciliata* Fabricius
   These shorter, three times the scale . . . . . *howardii* Coquillett
5. Antennæ inflated; air-tube small . . . . . *discolor* Coquillett
   Antennæ normal; air-tube fusiform inflated 6
6. Air-tube with very long terminal hairs . . . . . *cyanescens* Coquillett
   Terminal spines of tube short and imperspicuous 7
7. Antennæ very long and prominent, longer than the length of head, { *ferox* Humboldt / *lutzii* Theobald / *varipes* Coquillett }
   Antennæ prominent, but shorter than length of head 8
8. Head-hairs not disproportionate, the upper tuft not, or but slightly more numerous than the lower one 9
   Upper tuft much more numerous than the lower 11
9. Head-hairs single . . . . . { *signipennis* Coquillett / *pygmæa* Theobald }
   Head-hairs, upper 3-6, lower 2-5 10
10. Head-hairs developed, upper five or six; anal gills normal, long, { *jamaicensis* Theobald / *columbiæ* Dyar and Knab / *tolteca* Dyar and Knab }
    Head-hairs reduced, upper in 3; anal gills very short . . *insularius* Dyar and Knab
11. Upper head-hairs in five . . . . . *cingulata* Fabricius
    Hairs somewhat less developed, upper in four . . . . . *infinis* Dyar and Knab

The following species are unknown in the larva: *Holmbergii, pallescens, marmorata, mexicana, fiebrigi, champerico, discrucians, johnsonii, coffini, chilensis, paulli, varinervis,* and *confinnis.*

Subgenus PSOROPHORA Robineau-Desvoidy

PSOROPHORA (PSOROPHORA) HOWARDII Coquillett

PSOROPHORA HOWARDII Coquillett, Can. Ent., xxxiii, 258, 1901.
PSOROPHORA VIRESCENS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 133, 1906.
Psorophora howardii and *virescens* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 126 and 127, 1911.
Psorophora virescens and *howardii* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 541 and 544, 1917.
Psorophora (Psorophora) howardii Dyar, Proc. U. S. Nat. Mus., lxii, 35, 1922.
Psorophora virescens and *howardii* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 341 and 342, 1925.
Psorophora howardii Dyar, Ins. Ins. Mens., xiii, 133, 1925.

Female—Proboscis slender, blue-black. Palpi half as long as proboscis. Mesonotum brown and black, shining; a median longitudinal line of small

blackish scales with a broad bare stripe on each side; another row of scales beyond, interrupted anteriorly and extending close to base of mesonotum; anterior angles broadly nude, a patch of white scales above; white scales across antescutellar space, a broad bare stripe on each side. Pleuræ with white scales; coxæ with bluish scales on anterior pair. Abdomen dorsally clothed with dark scales with blue or green luster; laterally white scales tend to form a lateral line and basal and apical segmental patches; venter largely white-scaled, a series of medio-ventral blue spots. Legs: Femora with small, yellow, shining scales, a broad apical ring of black outstanding scales; tibiæ with metallic blue reflection with apical ring of outstanding black scales with blue iridescence; tarsi with slightly raised blackish vestiture and silvery white rings at bases of first and second joints.

Male—Coloration as in the female. Hypopygium (Plate XXIV, Fig. 73): Side-piece conical, about twice as long as wide, with many stout hairs. Claspette with rather small stem and large round capitate head, densely covered with short coarse setæ. Clasper stout, swollen, the tip bent roundedly at right angles and pointed, with small terminal spine; at the middle a thick prominence at right angles, bent basally at its tip. Tenth sternites large, rather narrow, the tip with five small teeth. Ninth tergites a slight angle on each side bearing normal body setæ, the segment reduced to a narrow band of chitin centrally. Mesosome forming a stout cylinder with notched tip.

Larva (Plate XXIV, Fig. 73)—Head subquadrate, wider than long. Antennæ small, spinulated. Upper head-hair single, lower divided into three or four beyond the middle. Lateral comb of the eighth segment of many spines in a large patch, the posterior row of large spines, each with long central spine and small spines on the corners. Air-tube four times as long as wide, tapered outwardly; pecten of long teeth not reaching the middle of the tube; a single long hair beyond. Anal segment longer than wide, encircled by the plate, dorsal tuft a long hair and short tuft on each side; lateral hair single, small; ventral brush of long tufts the length of the segment. Anal gills longer than the segment, slender, tapered.

Southern United States, Cuba, Mexico, Costa Rica.

The larvæ occur in temporary rain-pools and feed upon other mosquito larvæ living there. The development is very rapid.

PSOROPHORA (PSOROPHORA) CILIPES (Fabricius)

CULEX CILIPES Fabricius, Syst. Antliat., 34, 1805.

SABETHES SCINTILLANS Walker, Cat. Brit. Mus., Dipt., i, i, 1848.

PSOROPHORA IRACUNDA Dyar and Knab (not *Culex iracundus* Walker, 1848), Proc. Biol. Soc. Wash., xix, 133, 1906.

Psorophora scintillans and *cilipes* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 118 and 127, 1911.

Psorophora cilipes Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 538, 1917.

Psorophora cilipes Peryassú, A Folha Medica, iv, 70, 1923.

Psorophora cilipes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 340, 1925.

Psorophora (Psorophora) cilipes Dyar, Ins. Ins. Mens., xiii, 134, 1925.

Female—Proboscis moderate, black with blue luster. Palpi two-fifths as long as the proboscis. Prothoracic lobes with many black setæ. Occiput with white curved scales. Mesonotum shining black; a narrow median

longitudinal line of small black scales; on either side a broad convex bare space; a narrow straight line of small black scales; lateral areas with pearly white scales; antescutellar space covered by white scales; a broad bare space on each side. Pleuræ and coxæ with white scales. Abdomen dorsally black with bright metallic blue luster; a series of large lateral white patches on posterior edges of the segments; first segment with many metallic blue scales; venter brownish black, scaled like the dorsum but scantily. Legs with dense erect vestiture of blue-black scales with violet luster, except the last three joints of tarsi, which have the scales but slightly raised; tips of mid and hind femora with patches of grayish white scales.

Male—Coloration similar to the female. Hypopygium (Plate XXIV, Fig. 74): Side-piece conical, tip broadly rounded, with many long setæ. Claspette curved, a stout stem widening outwardly, the tip conical, setose; an angular projection near tip bearing a waved pointed-tipped leaf. Clasper slender, uniform, curved, with spines inwardly on the outer half, the tip doubly pointed. Tenth sternites large, inner margins thickened, tip pointed, indistinctly toothed. Ninth tergites undeveloped. Mesosome of two pairs of appendages, the inner somewhat cylindrical, the outer smaller and divaricate.

Larva (Plate XXIV, Fig. 74)—Head subquadrate, wider than long. Antennæ small, spinulated. Upper head-hair single, lower divided outwardly. Lateral comb of the eighth segment a very large patch of small scales, the posterior row larger and with central spine and spines on the angles. Air-tube rather short and stout, about three times as long as wide; a long pecten running out for three-quarters of the tube; a long two-haired tuft beyond, situated near the tip of the tube. Anal segment longer than wide, ringed by the plate. Dorsal tuft a long hair and small tuft on each side; lateral hair single, small; ventral brush the length of the segment, stout. Anal gills about as long as the segment, slender, tapered.

Mexico, Costa Rica, Panama, British Guiana, Trinidad, Brazil, Argentina (Misiones, R. C. Shannon).

The larvæ occur in transient rain-pools in the jungle and feed upon other mosquito larvæ occurring there.

PSOROPHORA (PSOROPHORA) LINEATA (Humboldt)

CULEX LINEATUS Humboldt, Voy. Reg. Equin., vii, 119, 1820.
CULEX LONGIPES Macquart (not Fabricius), Dipt. Exot., i, 36, 1834.
PSOROPHORA SÆVA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 133, 1906.
PSOROPHORA GENUMACULATA Neiva, Brazil Med., No. 21, 329, 1907.
Psorophora genumaculatus Peryassú, Os Culic. do Brazil, 161, 1908.
Psorophora genumaculatus Theobald, Mon. Culic., v, 124, 1910.
Psorophora genumaculatus and *sæva* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 119 and 120, 1911.
PSOROPHORA BLANCHARDI Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 120, 1911.
Psorophora sæva Howard, Dyar, and Knab, Mosq. of No. and Cent. Am. and W. I., iv, 536, 1917.
Psorophora lineatus Dyar, Ins. Ins. Mens., xi, 180, 1923.
Psorophora genumaculata Peryassú, A Folha Medica, iv, 70, 1923.
Psorophora sæva Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 336 and 355, 1925.
Psorophora lineata Dyar, Ins. Ins. Mens., xiii, 134, 1925.

Female—Proboscis long, black with violaceous luster. Palpi about two-fifths as long as proboscis. Occiput with sparse white scales. Prothoracic lobes with many dark setæ. Mesonotum largely bare, dark; a narrow line of black scales in the middle; a similar line on each side, straight, separated by broad bare areas; at anterior termination of lateral lines, a line of white scales to roots of wings. Abdomen with black scales dorsally with black scales with violet-blue luster; first segment with a central patch of white scales; sides with large apical segmentary subquadrate patches of white scales, absent on the last two segments; venter violet-black like dorsum. Wings smoky brownish, darkest toward costa. Legs with erect violet-black scales; basal half of hind femur with yellowish iridescent scales, outwardly with suberect blue-black scales; knees broadly white-scaled; tibiæ and tarsi with dense violet-black erect scales, most prominent on hind legs.

Male—Coloration as in the female. Hypopygium (Plate XXIV, Fig. 75): Side-piece thick at base, conically narrowed and curved outwardly, thickened on outer side and beyond insertion of clasper. Claspette with stout sinuate stem, a little thickened outwardly, the tip with fine denser curved hairs and a narrow filament on one side. Clasper delicate, broad, triangularly widened outwardly, a small inserted spine on one angle. Tenth sternites rather large, thickened on inner margin, the tip with a single stout tooth. Ninth tergites undeveloped. Mesosome a stout cylinder, narrowed outwardly, the tips flared and finely denticulate.

Larva (Plate XXIV, Fig. 75)—Head subquadrate, wider than long. Antennæ moderate, sparsely spined; a single hair at outer fourth. Lateral comb of the eighth segment of many small scales in a patch, the posterior row larger with trifid apex and long middle tooth. Air-tube five times as long as wide, tapered from near base, pecten not reaching middle of tube; a small hair-tuft beyond the middle of the tube, well beyond the pecten. Anal segment longer than wide, ringed by the plate. Dorsal tuft a long hair and tuft on each side, a small lateral tuft; ventral brush running the whole length of the ventral line. Anal gills three times as long as the segment, tapered to a pointed tip.

Mexico, Panama, Venezuela, Trinidad, Surinam, and probably Brazil, although no record is before me.

The larvæ feed upon other mosquito larvæ occurring in temporary rain-pools in the jungle. They do not generally occur with *cilipes*, one or the other being dominant in any given locality.

PSOROPHORA (PSOROPHORA) CILIATA (Fabricius)

Culex ciliata Fabricius, Ent. Syst., iv, 401, 1794.
Culex cyanopennis Humboldt, Voy. Rég. Equin. (Hist.), vii, 119, 1820.
Culex molestus Wiedemann, Dipt. Exot., 7, 1821.
Culex tibialis Robineau-Desvoidy, Mém. Soc. Nat. Hist. Paris, iii, 404, 1827.
Culex rubidus Robineau-Desvoidy. Mém. Soc. Nat. Hist. Paris, iii, 404, 1827.
Psorophora boscii Robineau-Desvoidy, Mém. Soc. Nat. Hist. Paris, iii, 413, 1827.
Culex conterrens Walker, Ins. Saund., Dipt., 427, 1856.
Culex perterrens Walker, Ins. Saund., Dipt., 431, 1856.
Psorophora holmbergii Theobald (not Lynch Arribálzaga), Mon. Culic., i, 264, 1901.
Psorophora ciliata and *Culex tibialis* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 125 and 185, 1911.
Psorophora lynchi Brèthes, An. Mus. Nac. Hist. Nat. B. A., xxviii, 204, 1916.

Psorophora ciliata Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 530, 1917.
PSOROPHORA (PSOROPHORA) CTITES Dyar, Ins. Ins. Mens., vi, 126, 1918.
Psorophora tibialis Dyar, Ins. Ins. Mens., ix, 149, 1921.
Psorophora (Psorophora) ciliata Dyar, Trans. Royal Can. Inst., Toronto, xiii, Pt. 1, 84, 1921.
Psorophora ciliata, ctites, and *tibialis* Dyar, Ins. Ins. Mens., x, 114, 1922.
Psorophora ciliata Peryassú, A Folha Medica, iv, 70, 1923.
Psorophora (Psorophora) ciliata and *ctites* Dyar, Proc. U. S. Nat. Mus., lxii, 33 and 34, 1924.
Psorophora ciliata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 355, 1925.
Psorophora ciliata Dyar, Ins. Ins. Mens., xiii, 133, 1925.

Female—Proboscis moderate, yellow-brown to black, the basal half with raised black scales; palpi one-third as long as the proboscis with raised scales. Occiput with sparse white scales. Prothoracic lobes with black bristles. Mesonotum dark brown to nearly black; a median stripe of dark golden scales, running into pale gray scales that cover antescutellar space; a bare stripe on either side; shoulders broad, with pale gray scales; more or less distinct second line of yellow scales in the edge of the gray shoulder area. Abdomen with gray or pearly scales posteriorly, more or less replaced by black anteriorly laterally; venter sparsely white-scaled with illy defined median segmental black patches. Legs with tips of femora and all of tibiæ with outstanding black scales; tarsi with outstanding scales black, the bases of the joints broadly white, the white scales not raised. Sometimes proboscis, palpi, and legs are without raised scales *(ctites)*. Wings dark smoky, darker costally; wing-scales narrow, dark.

Male—Coloration as in the female. Hypopygium (Plate XXV, Fig. 76): Side-piece stout, conical, hairy. Claspette a stout curved rod, rounded on the end with many fine hairs; a sinuate widened filament with sharp tip subapically. Clasper ligulate, curved, chitinized, an angle subapically, the tip pointed with terminal spine; some short stout setæ within on outer half. Tenth sternites large, inner margin thickened, a tooth at tip. Ninth tergites undeveloped; the curved membrane bears normal setæ. Mesosome a cylinder of two parts with inwardly retrose serrations at tip.

Larva (Plate XXV, Fig. 76)—Head quadrate, longer than wide; antennæ slight, lateral; head-hairs single; mouth-brushes of strong lamellæ. Lateral comb of the eighth segment a large patch of minute spines, the posterior row large, trifid, with central long point. Air-tube four times as long as wide, conical basally, narrower outwardly; pecten reaching to about the middle, followed by a single hair beyond the middle of tube. Anal segment longer than wide, ringed by the plate; dorsal tuft a long hair and small tuft on each side; lateral tuft small, in three; ventral brush running the length of the segment. Anal gills more than twice as long as the segment, tapering to sharp points.

Southeastern Canada, eastern United States, Venezuela, Bolivia, Brazil, Argentina. Not found in tropical lowlands.

The larvæ feed upon other mosquito larvæ occurring with them in temporary rain-pools.

PSOROPHORA (PSOROPHORA) HOLMBERGII Lynch Arribálzaga

PSOROPHORA HOLMBERGII Lynch Arribálzaga, Rev. Mus. de La Plata, 40, 1891.
Psorophora holmbergii Peryassú, Os Culic. do Braz., 158, 1908.
Psorophora holmbergii Theobald, Mon. Culic., v, 124, 1910.
Psorophora holmbergii Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 125, 1911.
Psorophora holmbergii Brèthes, Bol. Inst. Ent. y Pat. Veg., i, 24, 1912.
Psorophora holmbergii Lutz, Mem. Inst. O. Cruz., x, 87, 1919.
Psorophora holmbergii Dyar, Ins. Ins. Mens., x, 115, 1922.
PSOROPHORA AGOGGYLIA Dyar, Ins. Ins. Mens., x, 115, 1922.
Psorophora holmbergii Peryassú, A Folha Medica, iv, 70, 1923.

Female—Proboscis slender, black, smooth. Palpi two-fifths as long as the proboscis, black, smooth. Occiput with sparse whitish gray scales. Prothoracic lobes with black bristles. Mesonotum nearly black, with patches of gray scales; median line black, showing row of few golden scales; bare space on each side narrow, nearly divided by the gray scales running forward from the antescutellar space; anterior gray scales forming a broad stripe, curved inward, the extreme shoulder corners bare. Abdomen with gray scales; two small black points dorsally on each segment. Tips of femora, all of tibiæ and tarsi with black scales which are not raised, not as long as the setæ; bases of all the tarsal joints broadly white-scaled. Wings smoky; wing-scales narrow, dark.

Male—Unknown.

Larva—Unknown.

Argentina.

PSOROPHORA (PSOROPHORA) PALLESCENS Edwards

PSOROPHORA PALLESCENS Edwards, Bull. Ent. Res., xiii, 76, 1922.
PSOROPHORA STIGMATEPHORA Dyar, Ins. Ins. Mens., x, 116, 1922.

Female—Proboscis pale with black tip, small dark raised scales on the basal half. Occiput with gray scales. Prothoracic lobes with pale bristles. Mesonotum extensively gray-scaled, the median line broad, touched with yellowish; lateral bare spaces narrow, black, running back to antescutellar space, on each side of which is a black bare patch; a pair of small oval black bare spots mesially. Abdomen dark with dense gray scales. Legs pale; tips of femora, all of tibiæ with sparse raised black-tipped scales; tarsi pale, the scales white at the bases of the joints and darker apically, but not showing distinct banding. Wings pale smoky, the scales mixed with white ones, especially costally.

Male—Coloration as in the female. Hypopygium (Plate XXV, Fig. 77): Side-piece stout, conical, hairy. Claspette ligulate, arcuate, rounded at tip, with many fine hairs; a rather slender grooved curled filament subapically. Clasper ligulate, curved, chitinized, ending in an outward and inward rounded point; some spines inwardly on outer half. Tenth sternites large, black at tip and with a terminal tooth. Ninth tergites undeveloped, the segments of the tergite with normal setæ. Mesosome two conical segments, black at tip and with a very sharp outwardly directed triangular point.

Larva—Unknown.

Paraguay and Argentina.

PSOROPHORA (PSOROPHORA) MARMORATA (Philippi)

CULEX MARMORATUS Philippi, Verh. z.-b. Ges. Wien, xv, 597, 1865.
Culex marmoratus Theobald, Mon. Culic., v, 399, 1910.
Psorophora (?) marmoratus Dyar, Ins. Ins. Mens., xii, 129, 1924.

Female—Unknown.

Male—Proboscis and palpi pale, grayish brown, the palpi with very long vestiture. Thorax a little darker. Abdomen brown, marbled with little dark dots and larger whitish spots, of which one is more marked laterally. Legs pale, grayish brown, the hind pair with long vestiture.

Larva—Unknown.

Chile.

The identity of this species is uncertain. I have interpreted it as a *Psorophora* allied to or the same as *pallescens*, but no material is before me.

Susgenus JANTHINOSOMA Lynch Arribálzaga

PSOROPHORA (JANTHINOSOMA) FEROX (Humboldt)

CULEX FEROX Humboldt, Voy. Reg. Equin., vii, 119, 1820.
CULEX POSTICATUS Wiedemann, Dipt. Exot., i, 43, 1821.
CULEX MUSICUS Say (not Leach) Journ. Acad. Nat. Sci. Phil., vi, 149, 1827.
JANTHINOSOMA OBLITUS Lynch Arribálzaga, Rev. Mus. de La Plata, ii, 154, 1891.
Culex digitatus Blanchard (not Rondani), Les Moust., 319, 1905.
JANTHINOSOMA TERMINALIS Coquillett, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 11, 8, 1906.
JANTHINOSOMA SAYI Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 181, 1906.
JANTHINOSOMA ECHINATA Grabham, Can. Ent., xxxviii, 311, 1906.
JANTHINOSOMA VANHALLI Dyar and Knab, Proc. Biol. Soc. Wash., xix, 134, 1906.
JANTHINOSOMA SAYI Theobald, Mon. Culic., iv, 155, 1907.
JANTHINOSOMA COQUILLETTI Theobald, Mon. Culic., iv, 157, 1907.
AËDES PAZOSI Pazos, Anal. Acad. Cien. Med. Fis. y Nat. Habana, xlv, 432, 1908.
Janthinosoma vanhalli, coquilletti, lutzi (not Theobald), and *Culex digitatus,* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 109, 110, 111 and 177, 1911.
JANTHINOSOMA CENTRALE Brèthes, Bol. Inst. Ent. y Pat. Veg., i, 20, 1912.
Janthinosoma vanhalli Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 181, 1915.
Psorophora posticatus, terminalis, sayi, and *pazosi* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 548, 552, 554 and 565, 1917.
Psorophora (Janthinosoma) oblita Dyar, Ins. Ins. Mens., vii, 89, 1919.
Psorophora (Janthinosoma) oblita and *posticatus* Dyar, Ins. Ins. Mens., vii, 89, 1919.
Psorophora posticatus Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 22, 1921.
Psorophora posticatus posticatus and *posticatus sayi* Dyar, Ins. Ins. Mens., ix, 30, 1921.
Psorophora (Janthinosoma) posticatus Dyar, Trans. Royal Can. Inst., Toronto, xiii, Pt. 1, 85, 1921.
Psorophora (Janthinosoma) posticata Peryassú, A Folha Medica, iii, 105, 1922 (eggs of *Dermatobia).*
Psorophora (Janthinosoma) sayi Dyar, Proc. U. S. Nat. Mus., lxii, 35, 1922.
Psorophora (Janthinosoma) ferox Dyar, Ins. Ins. Mens., xi, 180, 1923.
Psorophora (Janthinosoma) posticata Peryassú, A Folha Medica, iv, 70, 1923.
Psorophora posticatus Dyar, Ins. Ins. Mens., xiii, 29, 1925.
Psorophora ferox Dyar, Ins. Ins. Mens., xiii, 135, 1925.
Psorophora ferox, pazosi, and *terminalis* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 342 and 356, 1925.

Female—Proboscis rather long, brownish black. Occiput with small pale scales in front, erect forked scales behind. Prothoracic lobes with white scales at the tip, setæ below. Mesonotum dark brown with small sparse, golden yellow scales, intermixed with inconspicuous black ones; pleuræ and coxæ with white scales. Abdomen dorsally with black scales with violet luster; a series of large lateral triangular yellowish white spots api-

cally on the segments; venter with yellowish white scales and more or less well developed black bands anteriorly on the segments. Legs black; tips of femora white, especially on last pair; apical third of hind tibia and first to third tarsal joints with dense obliquely outstanding scales; last two joints and tip of third joint white, the extent of white subject to local variation. Wings smoky, scales narrow, dark.

Male—Coloration of the female. Hypopygium (Plate XXV, Fig. 78): Side-piece cylindrical, truncate at tip, hairy. Claspette slender, curved at tip, the inner face expanded subapically, with many inwardly directed setæ; at tip two distorted appendages, the outer thickened and bent, the inner curled at tip. Clasper greatly inflated mesially, narrow at base and tip; terminal spine rather long. Tenth sternites large, broad at tip, with one tooth and denticles. Ninth tergites undeveloped. Mesosome a cylinder, narrowed outwardly.

Larva (Plate XXV, Fig. 78)—Head rounded, wider than long; antennæ longer than the head, curved, spined, a tuft of hairs a little before the middle. Head-hairs in twos, anteantennal tuft multiple. Lateral comb of the eighth segment of about seven large scales, each with trifid tip, the central spine long. Air-tube widely inflated, about three times the basal width; a small basal pecten of few teeth; hair-tuft obsolete. Anal segment longer than wide, ringed by the plate. Dorsal tuft a long hair and brush on each side; lateral tuft minute; ventral brush running the whole length of the segment. Anal gills longer than the segment, tapered to a point.

Southern Canada, eastern United States, Bahamas, Antilles, Mexico, Central America, Ecuador, Colombia, Venezuela, the Guianas, Trinidad, Bolivia, Brazil, and Argentina.

The larvæ are inhabitants of transient rain-pools. Their development is rapid. The adults are conspicuous, day-flying, and bite severely. The species is very widespread, very frequent after rains in forest, but they never attack in large numbers at once. The adults do not enter houses. Both sexes have been found feeding on flowers. The female type of *pazosi* has black markings on the fourth hind tarsal beneath, but agrees otherwise, and probably represents an aberration. The male hypopygium is normal.

PSOROPHORA (JANTHINOSOMA) MEXICANA (Bellardi)

Culex mexicanus Bellardi, Mem. R. Acad. Sci., di Tor. (2), xix, 205, 1859.
Psorophora mexicanus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 564, 1917.

Female—Proboscis moderate, black with blue reflection. Palpi one-fourth as long as proboscis, blue-black. Occiput with broad silvery scales. Prothoracic lobes with silvery scales. Mesonotum sparsely scaled with small brassy silvery scales with inconspicuous dark ones between; pleuræ and coxæ with white scales. Abdomen dark violaceous, with lateral quadrate patches of yellowish white scales on the posterior angles of the segments. Venter brassy white with purple bands at the bases of the segments. Legs dark violaceous; last hind tarsal joint white, the fourth joint black outwardly, with a pale, almost white area at its base. Wings iridescent infuscated, the scales narrow, dark.

Male—Unknown.

Larva—Unknown.

Mexico.

PSOROPHORA (JANTHINOSOMA) FIEBRIGI Edwards

PSOROPHORA (JANTHINOSOMA) FIEBRIGI Edwards, Bull. Ent. Res., xiii, 77, 1922.

Female—Proboscis moderate, purple-scaled. Palpi one-fourth as long as the proboscis, purple-scaled. Mesonotum with small flat bronzy scales, not lighter at the sides; pleuræ with silvery gray scales. Abdomen purple-scaled dorsally; apical corners of the segments golden; venter mostly golden with narrow purple bands at the bases of the segments. Legs purple-scaled; fourth hind tarsal joint white on basal three-fifths, tip dark; last hind tarsal joint white beneath except at tip, upper surface more or less darkened. Wing-scales dark.

Male—Last hind tarsal joint whiter above than in the female, the coloration otherwise similar. Hypopygium: Claspers greatly expanded in the middle with moderately long slender hooked tip. Claspette long and rather stout, suddenly bent almost at right angles a little beyond the middle, tip very slightly expanded; two outer filaments short and flattened, the outer one simple, the second distorted.

Larva—Unknown.

Paraguay.

This species is not before me. It appears to be but a slight variant of *mexicana*.

PSOROPHORA (JANTHINOSOMA) LUTZII Theobald

JANTHINOSOMA LUTZII Theobald, Mon. Culic., 1, 257, 1901.
CULEX ALBITARSIS Neveu-Lemaire, Arch. Parasit., vi, 10, 1902.
JANTHINOSOMA ALBIPES Theobald, Mon. Culic., iv, 157, 1907.
Janthinosoma albipes Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 111, 1911.
Psorophora lutzii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 557, 1917.
Psorophora lutzii Gordon and Evans, Ann. Trop. Med. and Par., xvi, 329, 1922.
Psorophora (Janthinosoma) lutzii Peryassú, A Folha Medica, iv, 70, 1923.
Psorophora lutzii Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 346, 1925.
Psorophora (Janthinosoma) lutzii Dyar, Ins. Ins. Mens., xiii, 136, 1925.
Psorophora lutzii Dyar, Ins. Ins. Mens., xiii, 215, 1925.
PSOROPHORA CHACQUENSIS Paterson and Shannon, Terc. Reun. Soc. Arg., Mosq. de Emb., 4, 1927.

Female—Proboscis rather long, deep black with blue reflection. Palpi one-fifth as long as proboscis. Occiput with pale yellow scales. Prothoracic lobes with pale yellow scales. Mesonotum with a broad area widening posteriorly of dark brown scales; sides with pale yellow scales; pleuræ and coxæ with yellowish white scales. Abdomen blue-black with large triangular patches of yellowish scales on the posterior angles of the segments; venter blue-black at bases of the segments, yellow apically. Legs with violet-black scales; knees tipped with silvery white; last two joints of hind tarsi white. Wings smoky, scales narrow, dark.

Male—Coloration as in the female, but yellow scales about antescutellar space and on scutellum. Hypopygium (Plate XXVI, Fig. 79): Side-piece cylindrical, truncate at tip, hairy. Claspette slender, curved at tip, the inner face expanded subapically, with many inwardly directed setæ; at tip two distorted appendages, one thickened and bent, the other curled at tip. Clasper greatly inflated mesially, narrow at base and tip; terminal spine

rather long. Tenth sternites large, broad at tip, with one tooth. Ninth tergites undeveloped. Mesosome a cylinder, narrowed outwardly.

Larva (Plate XXVI, Fig. 79)—Head rounded, wider than long; antennæ longer than the head, curved, spined, a tuft of hairs at middle. Head-hairs in twos, anteantennal tuft multiple. Lateral comb of the eighth segment of about seven large scales, each with trifid tip, the central spine long. Air-tube widely inflated, about three times the basal width; a small basal pecten of few teeth; a small three-haired tuft at middle of tube. Anal segment longer than wide, ringed by the plate. Dorsal tuft a long hair and brush on each side; lateral tuft minute; ventral brush running the whole length of the segment. Anal gills longer than the segment, tapered to a point.

Mexico, Honduras, Guatemala, Nicaragua, Panama, Colombia, Venezuela, Trinidad, the Guianas, Brazil, Argentina.

The larvæ occur in transient rain-pools. The adults fly in the forest and bite much as with *ferox*, but the species is less common and has a less extended range.

PSOROPHORA (JANTHINOSOMA) CHAMPERICO Dyar and Knab

JANTHINOSOMA CHAMPERICO Dyar and Knab, Proc. Biol. Soc. Wash., xix, 134, 1906.
AËDES HORRIDUS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 56, 1908.
Psorophora horridus and *champerico* Howard, Dyar, and Knab, Mosq. of No. and Cent. Am. and W. I., iv, 561 and 563, 1917.
Psorophora (Janthinosoma) horridus Dyar, Proc. U. S. Nat. Mus., lxii, 36, 1922.
Psorophora champerico Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 356, 1925.
Psorophora (Janthinosoma) champerico Dyar, Ins. Ins. Mens., xiii, 136, 1925.

Female—Proboscis moderate, slender, black. Palpi one-fourth as long as proboscis. Occiput with dull yellow to grayish white scales. Prothoracic lobes with scales of the same color. Mesonotum with broad central band of small black scales, wide and uniform, only a little narrowed anteriorly; lateral areas with golden yellow to creamy white scales; some scales of this color on each side of the antescutellar space and on scutellum. Abdomen purple above, the first segment with yellow scales; lateral area yellow to white, either in a nearly even band or forming triangular spots at the posterior corners of the segments; venter also of this color with more or less developed transverse basal segmental purple bands. Legs dark purple, the scales on the hind legs slightly raised; last two hind tarsal joints white. Wings smoky, the scales narrow, dark.

Male—No specimen is before me. The hypopygium (Plate XXV, Fig. 80) has been figured by Dr. E. P. Felt. It is indistinguishable from that of *ferox* or *lutzii*.

Larva—Unknown.

Gulf States, Mexico, Guatemala, Panama, and Venezuela.

A species closely allied to *lutzii*, perhaps not properly separable. *Champerico* was founded upon a large dark specimen, the light scales yellow, venter strongly banded; lateral yellow area forming a band; *horrida* on a smaller specimen, light scales creamy white, venter all pale, lateral yellow forming posterior segmental triangles. The characters do not hold together even in the same locality. Both are found in Central America and Panama; United States specimens all have the pale scales creamy *(horrida)*, while Venezuelan specimens are all yellow *(champerico)*.

PSOROPHORA (JANTHINOSOMA) VARIPES (Coquillett)

CONCHILIASTES VARIPES Coquillett, Can. Ent., xxxvi, 10, 1904.
JANTHINOSOMA ALBIGENU Peryassú, Os Culic. do Braz., 155, 1908.
Janthinosoma albigenu and *varipes* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 113 and 116, 1908.
Janthinosoma albigenu Theobald, Mon. Culic., v, 121, 1911.
Psorophora discrucians Howard, Dyar, and Knab (not Walker), Proc. U. S. Nat. Mus., Am. and W. I., iv, 569, 1917.
Psorophora (Janthinosoma) discrucians Dyar (not Walker), Proc. U. S. Nat. Mus., lxii, 37, 1922.
Psorophora (Janthinosoma) albigenu Peryassú, A Folha Medica, iv, 0, 1923.
Psorophora discurcians Bonne and Bonne-Wepster (not Walker), Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 353, 1925.
PSOROPHORA (JANTHINOSOMA) BRUCHI Petrocchi, Rev. del Inst. Bact., iv, 728, 1927.

Female—Proboscis moderate, slender, black with purplish reflection. Occiput and prothoracic lobes with small whitish scales. Mesonotum with a broad area of black scales in the middle, including the scutellum, the sides with a band of whitish scales. Abdomen blue and purple with lateral apical segmental triangular yellow spots; venter golden yellow, more or less distinctly banded with purple at bases of the segments. Legs black with violaceous reflection; hind femur with silvery white tip, the fourth hind tarsal white except at its tip. Wings slightly smoky, the scales narrow, dark.

Male—Coloration as in the female, but pale scales beside the antescutellar space and on scutellum. Hypopygium (Plate XXVI, Fig. 81): Side-piece cylindrical, truncate at tip, hairy. Claspette cylindrical, straight; near the middle inwardly a stout seta, followed by a number of fine setæ; two filaments at tip, leaf-like, small, are bent down and appressed against the stem. Clasper strongly swollen, the swelling reaching apex, the terminal point is lateral. Tenth sternites large, inner margin thickened, the tip with several small teeth. Ninth tergites undeveloped, a pair of lobes with normal setæ. Mesosome a slender cone, much narrowed outwardly.

Larva—Head rounded, wider than long; antennæ as long as the head, spinulated; a long tuft beyond the middle. Head-hairs in twos, long; ante-antennal tuft multiple. Lateral comb of the eighth segment of six separated scales, each with very long and stout central thorn and small side-thorns. Air-tube inflated, about three times the basal width; four sparse pecten teeth near base. Anal segment longer than wide, ringed by the plate; dorsal tuft a long hair and tuft on each side. Ventral brush running nearly to base of the segment. Anal gills long, pointed.

Gulf States, Mexico, Guatemala, Venezuela, Bolivia, Argentina, and Brazil (no Brazilian specimen before me).

The larvæ develop in transient rain-pools. This species does not occur in low tropical jungles, and for this reason has not been taken in Panama.

PSOROPHORA (JANTHINOSOMA) DISCRUCIANS (Walker)

CULEX DISCRUCIANS Walker, Ins. Saund., 430, 1856.
JANTHINOSOMA ARRIBALZAGÆ Giles, Gn. or Mosq., 2 ed. 339, 1902.
Janthinosoma discrucians Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 116, 1911.
Janthinosoma arribalzagæ Lutz, Mem. Inst. O. Cruz., x, 86, 1919.
Psorophora (Janthinosoma) discrucians Peryassú, A Folha Medica, iv, 70, 1923.

Female—Proboscis slender, black with purple reflection; palpi one-fifth length of proboscis. Head and prothoracic lobes with small yellowish brassy scales. Mesonotum and scutellum with small yellowish scales over the surface, mixed with inconspicuous dark ones, the pale scales often thicker at the sides; pleuræ and coxæ with yellowish white scales. Abdomen purple, with segmental, lateral, posterior yellowish white patches; venter with apices of the segments yellow, the bases broadly purple. Legs purple, the femora with only a few gray scales at tip; basal two-thirds of fourth hind tarsal white. Wings smoky, the scales narrow, dark.

Male—Unknown.

Larva—Unknown.

Bolivia, Brazil, Argentina; Rosario, Bolivia, November 1921 (W. M. Mann); Rio Parana Guazu, Argentina, February 28, 1919 (F. E. Blanchard).

This southerly distributed form has been confused with *varipes;* but the thoracic ornamentation is distinctive. In Bolivia, the two species were flying together.

PSOROPHORA (JANTHINOSOMA) JOHNSTONII Grabham

JANTHINOSOMA JOHNSTONII Grabham, Can. Ent., xxxvii, 410, 1905.
JANTHINOSOMA SCHWARZI Dyar and Knab, Proc. Biol. Soc. Wash., xix, 135, 1906.
Janthinosoma schwarzi Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 114, 1911.
Psorophora johnstonii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 572, 1917.
Psorophora johnstonii Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 354, 1925.

Female—Proboscis moderate, slender, black with blue reflection. Occiput and prothoracic lobes with small whitish scales. Mesonotum with small sparse yellowish scales intermixed with inconspicuous black ones, the pale scales often denser at the sides; pleuræ and coxæ with whitish scales. Abdomen purple, the sides with apical segmental creamy white spots, sometimes joined in an irregular band; venter with the segments brassy yellow apically, purplish at base. Legs purplish, the tips of hind tibiæ with a small patch of gray-white scales; fourth hind tarsal white except at its tip. Wings slightly smoky, scales narrow, dark.

Male—Unknown.

Larva—Unknown.

Greater Antilles.

PSOROPHORA (JANTHINOSOMA) COFFINI Dyar and Knab

JANTHINOSOMA COFFINI Dyar and Knab, Proc. Biol. Soc. Wash., xix, 134, 1906.
Janthinosoma coffini Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 117, 1911.
Psorophora coffini Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 574, 1917.
Psorophora coffini Dyar, Ins. Ins. Mens., ix, 31, 1921.

Female—Proboscis moderate, slender, black with blue reflection. Occiput and prothoracic lobes with small whitish scales. Mesonotum with small sparse yellowish scales intermixed with inconspicuous black ones, the pale scales often denser at the sides; pleuræ and coxæ with whitish scales. Abdomen purple, the sides with apical segmental creamy white spots, sometimes joined in an irregular band; venter with the segments brassy

yellow apically, purplish at base. Legs purplish; fourth hind tarsal white except at its tip. Wings slightly smoky, scales narrow, dark.

Male—Coloration as in the female. Hypopygium (Plate XXVI, Fig. 82): Side-piece cylindrical, narrowed outwardly, truncate at tip. Claspette slender, a little hollowed and narrowed on apical third with fine setæ within, the basal one stouter; a bent and a curled filament at tip. Clasper with slender base, strongly swollen mesially, the tip narrowly slender with retrose apical spine. Tenth sternites rather large, inner margin thickened, a tooth at tip. Ninth tergites undeveloped. Mesosome a small pointed cylinder.

Larva—Unknown.

Bahamas and Virgin Islands.

This is a smaller species than *johnstonii* and does not show a white tip to the hind femora. Both species represent the South American *discrucians*, not the North American *varipes*.

PSOROPHORA (JANTHINOSOMA) CYANESCENS (Coquillett)

CULEX CYANESCENS Coquillett, Journ. N. Y. Ent. Soc., x, 137, 1902.
Psorophora cyanescens Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 567, 1917.
PSOROPHORA (JANTHINOSOMA) PURPURASCENS Edwards, Bull. Ent. Res., xiii, 77, 1922.
PSOROPHORA (JANTHINOSOMA) TOVARI Evans, Ann. Trop. Med. and Par., xvi, 218, 1922.
Psorophora (Janthinosoma) cyanescens Dyar, Proc. U. S. Nat. Mus., lxii, 38, 1922.
Psorophora tovari Evans, Ann. Trop. Med. and Par., xvii, 106, 1923.
Psorophora tovari and *cyanescens* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 357, 1925.
PSOROPHORA DYARI Petrocchi, Rev. del Inst. Bact., iv, 725, 1927.

Female—Proboscis moderate, slender, black with slight blue reflection. Occiput and prothoracic lobes with small brassy scales. Mesonotum rather densely with small brassy scales, uniformly distributed; pleuræ and coxæ with white scales. Abdomen dark violet, segments apically with transverse bands of submetallic yellowish scales, varying in extent, forming a point mesially or mesially divided; venter with dark scales mixed with pale ones. Legs with the femora yellowish, sometimes contrastingly orange-yellow; tibiæ and tarsi black with violet reflection. Wings scarcely smoky, scales narrow, dark.

Male—Coloration as in the female. Hypopygium (Plate XXVI, Fig. 83): Side-piece cylindrical, roundedly truncate at tip, hairy. Claspette slender, cemented to the side-piece except at base and tip; tip triangularly expanded and with an inner arm; six or seven flattened narrow filaments along the margin arising from conical tubercles. Tenth sternites rather large, inner margin thickened, tip with laterally projecting point. Clasper swollen mesially, base and tip narrow, a terminal retrose spine. Ninth tergites undeveloped. Mesosome a small basal cylinder.

Larva (Plate XXVI, Fig. 83)—Head rounded, wider than long; antennæ stout, long, but not longer than the head, sinuate, a two-haired tuft near middle. Head-hairs single; anteantennal tuft in three. Lateral comb of the eighth segment of five scales on a weakly chitinized area, each scale trifid, with long central tooth. Air-tube strongly inflated, three times as long as basal width; a small pecten of four teeth at base of tube. Two long terminal reflexed hairs. Anal segment longer than wide, ringed by the plate; dorsal tuft a long hair and tuft on each side. Ventral brush running the length of the segment. Anal gills slender, longer than the segment, tapered.

Gulf States, Mexico, Colombia, Venezuela, Paraguay, and Argentina.

The larvæ occur in transient rain-pools. The species does not occur in the tropical lowlands, being adapted to drier conditions, although not those of actual aridity.

Subgenus GRABHAMIA Theobald

PSOROPHORA (GRABHAMIA) CHILENSIS (Blanchard)

CULEX VARIEGATUS E. Blanchard (not Schrank), Gay's Hist. Chile, Zool., vii, 333, 1852.
Culex variegatus Philippi, Verh. z.-b. Ges. Wien., xv, 595, 1865.
CULEX CHILENSIS R. Blanchard, Les Moust., 289, 1905.
Culex chilensis Theobald, Mon. Culic., v, 398, 1910.
Psorophora (?) chilensis Dyar, Ins. Ins. Mens., xii, 129, 1924.

Female—"Thorax yellowish black, marked with three dark longitudinal lines, the median one much straighter than the lateral ones. Wings hardly smoky with scattered blackish spots, the three largest on the costa. Fringe grayish. Legs very pale, the joints blackish at their tips."

Male—Unknown.

Larva—Unknown.

Chile (Arquero).

This species is unknown to me in nature. It would appear to be a *Grabhamia* allied to *varinervis* Edwards.

PSOROPHORA (GRABHAMIA) PAULLI Paterson and Shannon

PSOROPHORA (GRABHAMIA) PAULLI Paterson and Shannon, Terc. Reun. Soc. Arg. de Pat. Reg. del Norte (Tucumán), Mosq. de Embarcacion 4, 1927.

Female—Proboscis moderate, black at tip, gray-scaled basally. Occiput with white scales, somewhat sparse and showing dark between. Mesonotum mottled with blackish and silvery gray scales, the latter predominating around the margin; pleuræ and coxæ with whitish scales. Abdomen black, the segments with broad apical white bands; venter with sparse white scales, forming narrow bands apically on the segments. Legs black, white peppered, the femora largely pale toward base and with a white subapical ring; tibiæ and tarsi somewhat white speckled, the tarsi with moderate white rings at the bases of the joints. Wing-scales narrow, blackish, mixed with white, with pronounced black marks as follows: End of cell and bases of forks of second and fourth veins; spot on upper fork and tip of lower fork of fifth veins; costa and first vein nearly continuously dark.

Male—Unknown.

Larva—Unknown.

Argentina (Tres Posos, Salta).

A small species allied to the North American *signipennis*. Probably near *chilensis* Blanch., but does not seem the same.

PSOROPHORA (GRABHAMIA) VARINERVIS Edwards

PSOROPHORA (GRABHAMIA) VARINERVIS Edwards, Bull. Ent. Res., xiii, 78, 1922.
PSOROPHORA ALBOAURATA Petrocchi, Rev. del Inst. Bact., iv, 725, 1927.

Female—Proboscis yellowish with black tip. Occiput and prothoracic lobes with a few small brown scales. Mesonotum with dense small hair-like scales, somewhat longitudinally shaded; pleuræ and coxæ with very few yellowish scales. Abdomen with silky whitish scales dorsally, scarcely concealing the darker integument; venter similarly clothed. Legs pale, with

some darker scales and setæ; tarsal joints whitish toward base, blackish at tip. Wings iridescent, scarcely infuscated, scales dark and pale mixed; third vein, lower fork of fourth and fifth vein with its forks rather conspicuously darker than the rest; a dark spot or tuft at base of third vein; fringe dark.

Male—Unknown.

Larva—Unknown.

Paraguay and Argentina. Rio Villaguay, Entre Rios, Argentina, March 15, 1919 (C. Bruch); Gran Chaco, Colonia Florencia, Argentina, 1903 (E. R. Wagner).

This species inhabits arid regions in South America. It doubtless breeds in transient rain-pools. The adults presumably rest in withered grasses.

PSOROPHORA (GRABHAMIA) SIGNIPENNIS (Coquillett)

TÆNIORHYNCHUS SIGNIPENNIS Coquillett, Proc. Ent. Soc. Wash., vi, 167, 1904.
Psorophora signipennis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 575, 1917.
Psorophora signipennis Dyar, Ins. Ins. Mens., v, 116, 1917.
Psorophora (Grabhamia) signipennis Dyar, Proc. U. S. Nat. Mus., lxii, 38, 1922.

Female—Proboscis moderate, pale yellowish in the middle, blackish at base and tip. Occiput and prothoracic lobes with a few small pale hair-like scales. Mesonotum with hair-like scales with silvery luster, the general effect mottled, changing with the light; pleuræ and coxæ with a few similar scales. Abdomen black-scaled, the apices of the segments with transverse bands of pale scales, triangularly widened in the middle; also more or less pale basal scales, the pattern very variable. The apical pale scaling is generally denser and whiter than the basal scaling and narrows at the side. Venter blackish, the apices of the segments more or less pale. Legs mottled with black and white scales; femora with a subapical pale ring; tibiæ mottled, the tip black; tarsi white at base, black at tips, approximately half and half. Wing-scales in part elliptical, inflated, black and white mixed; costa white with three black spots beyond the middle; fifth vein white mesially, with one black spot; fringe checkered, alternatingly black and white.

Male—Coloration as in the female. Hypopygium (Plate XXVII, Fig. 84): Side-piece cylindrical, stout, roundedly truncate at tip, hairy. Claspette small, triangular, soldered to the side-piece with five terminal setæ. Clasper moderately inflated, the tip tapering, with distinct terminal spine. Tenth sternites large, inner margin thickened, a point at tip. Ninth tergites undeveloped. Mesosome a conical cylinder.

Larva (Plate XXVII, Fig. 84)—Head wider than long, a little bulging at the sides. Antennæ long, as long as the head, spinulose; a multiple tuft at about the middle. Head-hairs single, anteantennal tuft in four. Lateral comb of the eighth segment of six large scales on a weak chitinization, each scale trifid and with long central spine. Air-tube inflated, about three times as long as basal width; a small pecten of four spines at base. Anal segment longer than wide, ringed by the plate, dorsal tuft a long hair and multiple tuft on each side; ventral brush running the length of the segment. Anal gills longer than the segment, tapered.

Montana, Kansas, Arkansas, Texas, Arizona, New Mexico, and Mexico (Monterey).

The larvæ occur in small and transient rain-pools and develop with the greatest rapidity. The coloration of the adult matches that of dried grass.

This species is adapted to arid conditions where rains are infrequent and rain-water disappears rapidly.

PSOROPHORA (GRABHAMIA) DISCOLOR (Coquillett)

CULEX DISCOLOR Coquillett, Can. Ent., xxxv, 256, 1903.
Psorophora discolor Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 578, 1917.
Psorophora (Grabhamia) discolor Dyar, Proc. U. S. Nat. Mus., lxii, 39, 1922.

Female—Proboscis broadly pale yellowish in the middle, blackish at base and tip. Head and prothoracic lobes with hair-like pale scales. Mesonotum with fine pale and brown scales, longitudinally lined, forming narrow brown central line and broader lateral ones; pleuræ and coxæ with few fine, pale scales. Abdomen blackish dorsally, checkered with patches of pale scales, medio-dorsal and on posterior angles, the pattern variable and often confused; venter with pale and dark scales intermixed. Legs pale brownish, sparsely clothed with blackish scales; femora with faint subapical pale ring; tibiæ speckled, dark at tips; tarsi white at base, black at tip, about half and half. Wings with the scales in part narrowly elliptical; all dark, but forming denser patches as follows: Base of third vein; base of forks of second and fourth veins; base of upper fork of fifth; the third somewhat throughout its length, and tips of forks of fourth and fifth; fringe all dark.

Male—Coloration as in the female. Hypopygium (Plate XXVII, Fig. 85): Side-piece cylindrical, roundedly truncate at tip, hairy. Claspette soldered to the side-piece, its stem small, its apex triangular, bearing four somewhat flattened setæ. Clasper strongly inflated, the base and tip narrow; terminal spine reflexed. Tenth sternites large, inner margin thickened, a laterally directed tooth at tip. Ninth tergites undeveloped. Mesosome a short cylinder.

Larva (Plate XXVII, Fig. 85)—Head rounded, wider than long; head-hairs single, anteantennal tuft double. Antennæ large, longer than the head, inflated, sinuate, spined; a large hair-tuft before middle; two spines on the outer sinuation and two at tip. Lateral comb of the eighth segment of six large scales joined on a chitinous bar, each scale with trifid tip and long central spine. Air-tube comparatively small, about three times as long as basal width, very slightly inflated on basal half; a coarse pecten to near middle, followed by a multiple hair-tuft. Anal segment about as long as wide, ringed by the weak plate. Dorsal tuft of four moderate hairs on each side, lateral hair single, rather long; ventral brush in separated tufts reaching near base. Anal gills three times as long as the segment, tapered, tracheate.

New Jersey, District of Columbia, Virginia, North Carolina, Mississippi, Louisiana, Texas, and Mexico (Oaxaca).

The larvæ occur rarely in transient rain-pools. Their structure is quite anomalous, for though closely allied as adults to the other *Grabhamia*, it is the antennæ which serve as an enlarged air-reservoir instead of the air-tube as in all other known larvæ.

PSOROPHORA (GRABHAMIA) INSULARIUS (Dyar and Knab)

JANTHINOSOMA INSULARIUS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 135, 1906.
AËDES HARUSPICUS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 56, 1908.
Janthinosoma insularius Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 114, 1911.
Psorophora insularius and *haruspicus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 603 and 605, 1917.
Psorophora insularius and *haruspicus* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 353, 1925.

Female—Proboscis moderate, broadly pale or yellowish in the middle below, uniformly blackish above. Occiput with few small whitish scales and many erect black bristles behind. Mesonotum with small light scales mixed with brownish, forming an illy defined roundedly mottled pattern often faintly tinged with purplish. Pleuræ with nearly white narrow scales. Abdomen black above, the apices of the segments with transverse bands of whitish scales, moderate and straight; venter with pale scales predominating. Legs dark brown, speckled with white; femora sparsely speckled, with small white subapical ring; tibiæ finely speckled outwardly; tarsi with the joints narrowly white at base and dark at tip. Wing-scales narrowly ovate, dark and white mixed, the dark predominating.

Male—Coloration as in the female. Hypopygium (Plate XXVII, Fig. 87): Side-piece cylindrical, truncate at tip and a little produced inward, hairy. Claspette small, with a slender stem, soldered to the side-piece, the tip narrowly triangularly expanded and bearing two or three setæ. Clasper scarcely inflated, the tip slender and with a laterally directed spine. Tenth sternites large, one margin thickened, the tip bent, with a sharp tooth at tip. Ninth tergites undeveloped. Mesosome a basal pointed cylinder.

Larva (Plate XXVII, Fig. 87)—Head rounded, wider than long. Antennæ slender, not as long as the head, scarcely spicular, with a tuft near the middle. Head-hairs in threes, equal in length, anteantennal tuft multiple. Lateral comb of the eighth segment of six scales with trifid tips and long central spine. Air-tube evenly and strongly inflated; two or three pecten teeth near the base and a small tuft at outer third. Air-tube longer than wide, indistinctly ringed by the plate; dorsal tuft a long hair and tuft on each side. Ventral brush running the length of the segment. Anal gills very short, bud-shaped.

Jamaica and Santo Domingo.

The larvæ live in seaside pools in coral rocks filled by brackish water from rain and wave spatters.

PSOROPHORA (GRABHAMIA) PYGMÆA Theobald

GRABHAMIA PYGMÆA Theobald, Mon. Culic., iii, 245, 1903.
CULEX NANUS Coquillett, Can. Ent., xxxv, 256, 1903.
TÆNIORHYNCHUS ANTIGUÆ Giles, Journ. Trop. Med., vii, 384, 1904.
Grabhamia pygmæa Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 157, 1911.
Psorophora pygmæa Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 600, 1917.
Psorophora (Grabhamia) pygmæa Dyar, Proc. U. S. Nat. Mus., lxii, 41, 1922.
Psorophora pygmæa Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 352, 1925.

Female—Proboscis moderate, broadly pale or yellowish in the middle, the apical and basal thirds black. Occiput with few small whitish scales and many erect black bristles behind. Mesonotum with small light scales

mixed with brownish, forming an illy defined roundedly mottled pattern often faintly tinged with purplish. Pleuræ with nearly white narrow scales. Abdomen black above, the apices of the segments with transverse bands of whitish scales, usually strongly triangularly widened mesially and mesially cleft, especially posteriorly; venter with dark scales predominating. Legs dark brown, speckled with white; femora sparsely speckled with small white subapical ring; tibiæ finely speckled outwardly; tarsi with joints narrowly white at base and broadly black at tip. Wing-scales narrowly ovate, dark and white mixed, the dark predominating.

Male—Coloration as in the female. Hypopygium (Plate XXVII, Fig. 86): Side-piece cylindrical, truncate at tip and a little produced inward, hairy. Claspette small, with a slender stem, soldered to the side-piece, the tip triangularly expanded and bearing four setæ. Clasper moderately inflated beyond the middle, the tip slender and with a laterally directed spine. Tenth sternites large, one margin thickened, the tip bent; a terminal sharp spine. Ninth tergites undeveloped. Mesosome a basal pointed cylinder.

Larva (Plate XXVII, Fig. 86)—Head rounded, wider than long. Antennæ as long as head, spinulated, a small tuft before the middle. Head-hairs single, equal, long; anteantennal tuft in four. Lateral comb of the eighth segment of six scales on a weak chitinization, trifid, and with long central spine. Air-tube strongly inflated; about six sparse pecten teeth at base; a minute tuft at outer third. Anal segment longer than wide, ringed by the plate; dorsal tuft a long hair and tuft on each side; a minute lateral tuft; ventral brush running the length of the segment. Anal gills long, pointed.

Florida Keys, Bahamas, Greater Antilles; probably also the Leeward Islands of the Lesser Antilles (no material before me).

The type locality of *pygmæa* and *antiguæ* is Antigua; of *nanus*, Key West, Florida. The larvæ occur in temporary rain-pools. The distribution is a little aberrant, omitting southern Florida mainland, but extending farther east than usual along the smaller islands.

PSOROPHORA (GRABHAMIA) CONFINNIS (Lynch Arribálzaga)

Tæniorhynchus confinnis Lynch Arribálzaga, Rev. Mus. de La Plata, ii, 149, 1891.
Culex (?) confinnis Theobald, Mon. Culic., i, 382, 1901.
Tæniorhynchus confinnis Theobald, Mon. Culic., iii, 259, 1903.
Culex confinis and *Tæniorhynchus confinis* Blanchard, Les Moust., 297 and 385, 1905.
Tæniorhynchus confinnis Peryassú, Os Culic. do Braz., 227, 1908.
Psorophora cingulatus Theobald (not Fabricius), Mon. Culic., v, 419, 427, 1910.
Tæniorhynchus confinnis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 193, 1911.
Culex scutipunctatus Lutz and Neiva, Mem. Inst. O. Cruz., iii, 298, 1911.
Psorophora cingulatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., (pro parte), iv, 597, 1917.
Psorophora funiculus Dyar, Ins. Ins. Mens., viii, 141, 1920.
Psorophora (Janthinosoma) confinnis Dyar, Ins. Ins. Mens., ix, 149, 1921.
Psorophora confinnis Dyar, Ins. Ins. Mens., x, 193, 1922.
Psorophora (Grabhamia) confinnis Edwards, Bull. Ent. Res., xiii, 75, 1922.
Culex scutipuncatus Peryassú, A Folha Medica, iv, 76, 1923.
Psorophora funiculus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 355, 1925.
Psorophora funiculus Dyar, Ins. Ins. Mens., xiii, 23, 1925.
Psorophora funiculus Dyar, Ins. Ins. Mens., xiii, 141, 1925.

Female—Proboscis moderate, broadly pale or yellowish in the middle, the apical and basal thirds black. Occiput with few small whitish scales and many erect black bristles behind. Mesonotum with small light scales mixed with brownish, forming an illy defined, roundedly mottled pattern often faintly tinged with purplish. Pleuræ with nearly white narrow scales. Abdomen black above, the apices of the segments with transverse bands of whitish scales, usually strongly triangularly widened mesially and mesially cleft, especially posteriorly; venter with dark scales predominating. Legs dark brown, speckled with white; femora sparsely speckled with small white subapical ring; tibiæ coarsely speckled outwardly; tarsi with a pale ring on first joint, the other joints white at base and black at tip. Wing-scales narrowly ovate, dark and white mixed, the dark predominating; a dark spot at base of third vein.

Male—Coloration as in the female. Hypopygium (Plate XXVIII, Fig. 88): Side-piece cylindrical, truncate at tip and a little produced inward, hairy. Claspette small, with a slender stem, soldered to the side-piece, the tip triangularly expanded and bearing six setæ. Clasper greatly inflated beyond the middle, the tip slender and with a laterally directed spine. Tenth sternites large, one margin thickened, the tip bent. Ninth tergites undeveloped. Mesosome a basal pointed cylinder.

Larva—Unknown.

Panama (Komp, 1928), Colombia, Venezuela, Bolivia, Brazil, Argentina.

The larvæ develop in temporary ground-pools after rain.

This species has been mistaken for *cingulata;* but Lynch's description of the proboscis indicates the present form.

PSOROPHORA (GRABHAMIA) JAMAICENSIS (Theobald)

CULEX JAMAICENSIS Theobald, Mon. Culic., i, 345, 1901.

TÆNIORHYNCHUS WALSINGHAMI Theobald, Mon. Culic., iv, 484, 1907.

Grabhamia jamaicensis and *Tæniorhynchus walsinghami* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 156 and 193, 1911.

Psorophora jamaicensis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 581, 1917.

Psorophora jamaicensis Dyar, Ins. Ins. Mens., viii, 141, 1920.

Psorophora jamaicensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 354, 1925.

Female—Proboscis broadly pale yellowish in the middle, the apical third black. Occiput and prothoracic lobes with small, pale, inconspicuous scales. Mesonotum dark, with small, pale, hair-like scales and dark brown ones, sometimes tinged with purplish and forming an irregular mottled pattern. Abdomen black above, with posterior segmental whitish transverse bands, expanded in the middle or broken, variable in pattern. Venter dark with pale scales. Legs black, speckled with white; femora with a subapical whitish ring; tibiæ speckled; first tarsal joint with a mesial white band; remaining joints narrowly white at base. Wing-scales narrowly elliptical, black and white mixed, the black predominating, forming a spot at the base of third vein.

Male—Similar to the female in coloration. Hypopygium (Plate XXVIII, Fig. 90): Side-piece cylindrical, roundedly truncate at tip, hairy. Claspette soldered to the side-piece, with narrow subobsolete stem and triangularly expanded apex, bearing five setæ. Clasper strongly inflated beyond the middle, the tip narrow and with retrose terminal spine. Tenth

sternites large, the outer margin thickened, the tip incurved and pointed. Ninth tergites undeveloped. Mesosome a pointed-tipped cone.

Larva (Plate XXVIII, Fig. 90)—Head rounded, wider than long; antennæ as long as the head, spinulated, a small tuft at about the middle. Head-hairs in multiple tufts. Lateral comb of the eighth segment of about six scales on a weak chitinous plate, each scale trifid with long central spine. Air-tube inflated, with pecten of three small spines near the base; a small tuft at outer third. Anal segment longer than wide, ringed by the plate. Dorsal tuft a long hair and tuft on each side; a small lateral tuft; ventral brush running the length of the segment. Anal gills long, pointed.

Southern tier of the Greater Antilles, Jamaica, Santo Domingo, and Porto Rico.

The larvæ occur in temporary rain-pools.

PSOROPHORA (GRABHAMIA) COLUMBIÆ (Dyar and Knab)

JANTHINOSOMA TEXANUM Dyar and Knab, Proc. Biol. Soc. Wash., xix, 135, 1906.
JANTHINOSOMA FLORIDENSE Dyar and Knab, Proc. Biol. Soc. Wash., xix, 135, 1906.
JANTHINOSOMA COLUMBIÆ Dyar and Knab, Proc. Biol. Soc. Wash., xix, 135, 1906.
Janthinosoma texanum, columbiæ, and *floridense* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez, 114 and 115, 1911.
Psorophora texanum, floridense, and *columbiæ* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 585, 586, and 590, 1917.
Psorophora (Janthinosoma) texanum Dyar, Ins. Ins. Mens., vi, 127, 1918.
Psorophora columbiæ Dyar Ins. Ins. Mens. viii 141, 1920.
Psorophora (Grabhamia) columbiæ Dyar, Proc. U. S. Nat. Mus., lxii, 40, 1922.

Female—Proboscis broadly pale yellowish in the middle, the apical third black. Occiput and prothoracic lobes with small, pale, inconspicuous scales. Mesonotum dark, with small, pale, hair-like scales and dark brown ones, sometimes tinged with purplish and forming an irregular mottled pattern. Abdomen black above, with posterior segmental whitish transverse bands, expanded in the middle or broken, variable in pattern. Venter dark with pale scales. Legs black, speckled with white; femora with a subapical whitish ring; tibiæ speckled; first tarsal joint with a mesial white band; remaining joints narrowly white at base. Wing-scales narrowly elliptical, black and white mixed, the black predominating, forming a spot at the base of third vein.

Male—Similar to the female in coloration. Hypopygium (Plate XXVIII, Fig. 91): Side-piece cylindrical, roundedly truncate at tip, hairy. Claspette soldered to the side-piece, with narrow subobsolete stem and triangularly expanded apex, bearing six setæ. Clasper strongly inflated beyond the middle, the tip narrow and with retrose terminal spine. Tenth sternites large, the outer margin thickened, the tip incurved and pointed. Ninth tergites undeveloped. Mesosome a pointed-tipped cone.

Larva (Plate XXVIII, Fig. 91)—Head rounded, wider than long; antennæ as long as the head, spinulated, a small tuft at about the middle. Head-hairs, upper four, lower three, anteantennal tuft multiple. Lateral comb of the eighth segment of about six scales on a weak chitinous plate, each scale trifid, with long central spine. Air-tube inflated, a pecten of five teeth reaching nearly middle of tube; a two-haired tuft at outer third. Anal segment longer than wide, ringed by the plate; dorsal tuft a long hair and tuft on each side; ventral brush running the length of the segment. Anal gills long, pointed.

Cuba, Bahamas, United States from New York to Texas.

The larvæ live in temporary rain-pools, and are much preyed upon by those of *Psorophora ciliata.*

PSOROPHORA (GRABHAMIA) TOLTECA (Dyar and Knab)

JANTHINOSOMA TOLTECUM Dyar and Knab, Proc. Biol. Soc. Wash., xix, 135, 1906.
Janthinosoma toltecum Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 115, 1911.
Psorophora toltecum Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 588, 1917.
Psorophora toltecum Dyar, Ins. Ins. Mens., viii, 141, 1920.

Female—Proboscis broadly pale yellowish in the middle, the apical third black. Occiput and prothoracic lobes with small, pale, inconspicuous scales. Mesonotum dark, with small, pale, hair-like scales and dark brown ones, sometimes tinged with purplish and forming an irregular mottled pattern. Abdomen black above, with posterior segmental whitish transverse bands, expanded in the middle or broken, variable in pattern. Venter dark with pale scales. Legs black, speckled with white; femora with a subapical whitish ring; tibiæ speckled; first tarsal joint with a mesial white band; remaining joints narrowly white at base. Wing-scales narrowly elliptical, black and white mixed, the black predominating, forming a spot at the base of third vein.

Male—Similar to the female in coloration. Hypopygium (Plate XXVIII, Fig. 89): Side-piece cylindrical, roundedly truncate at tip, hairy. Claspette soldered to the side-piece, with narrow subobsolete stem and triangularly expanded apex, bearing seven setæ. Clasper strongly inflated beyond the middle, the tip narrow and with retrose terminal spine. Tenth sternites large, the outer margin thickened, the tip incurved and pointed. Ninth tergites undeveloped. Mesosome a pointed-tipped cone.

Larva (Plate XXVIII, Fig. 89)—Head rounded, wider than long; antennæ as long as the head, spinulated, a small tuft at about the middle. Head-hairs in multiple tufts. Lateral comb of the eighth segment of about six scales on a weak chitinous plate, each scale trifid with long central spine. Air-tube inflated, with a pecten of five large teeth running to the middle of the tube; a small multiple tuft at outer third. Anal segment longer than wide, ringed by the plate. Dorsal tuft a long hair and tuft on each side; a minute lateral tuft; ventral brush running the length of the segment. Anal gills long, pointed.

Mexico and Costa Rica. Ciruelas, Costa Rica, November 14, 1920 (A. Alfaro).

The larvæ live in temporary rain-pools.

PSOROPHORA (GRABHAMIA) CINGULATA (Fabricius)

CULEX CINGULATUS Fabricius, Syst. Antliat., 36, 1805.
CULEX APICALIS Theobald (not Adams), Mon. Culic., iii, 171, 1903.
JANTHINOSOMA INDOCTUM Dyar and Knab, Proc. Biol. Soc. Wash., xix, 161, 1906.
Culex apicalis Peryassú, Os Culic. do Braz., 202, 1908.
CULEX NEOAPICALIS Theobald, Mon. Culic., v, 336, 1910.
Culex neoapicalis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 178, 1911.
Psorophora cingulatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 597, 1917.
Psorophora confinnis Dyar (not Lynch), Ins. Ins. Mens., ix, 150, 1921.

Psorophora (Janthinosoma) cingulata Peryassú, A Folha Medica, iv, 70, 1923.
Psorophora cingulatus Dyar, Ins. Ins. Mens., xiii, 23, 1925.
Psorophora cingulata Dyar, Ins. Ins. Mens., xiii, 137, 1925.
Psorophora cingulatus and *confinnis* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 349 and 352, 1925.

Female—Proboscis moderate, slender, dark brown with a narrow yellowish ring beyond the middle. Occiput with small whitish scales in front; many erect black bristles behind. Mesonotum dark brown with small whitish scales, scattered, forming an irregular mottled pattern; pleuræ and coxæ with small sparse whitish scales. Abdomen black above, the segments with narrow apical silvery white bands, divided in the middle and expanding laterally; venter with whitish scales mixed with a few black ones. Legs black, the femora coarsely speckled with whitish, a narrow whitish ring before tip; tibiæ coarsely white speckled; tarsi narrowly white-ringed at their bases. Wing-scales narrow, all dark.

Male—Coloration as in the female. Hypopygium (Plate XXIX, Fig. 92): Side-piece cylindrical, inwardly widened and truncate at tip, hairy. Claspette with very narrow stem, soldered to the side-piece, then stout, short, with seven ligulate setæ on outer margin. Clasper swollen mesially, the tip and base narrow, terminal spine stout, reflexed. Tenth sternites narrow, ending in a long, blunt tooth, inwardly directed. Ninth tergites narrow with normal setæ only. Mesosome a pointed-tipped cylinder.

Larva (Plate XXIX, Fig. 92)—Head rounded, wider than long; upper head-hair a tuft, lower single, long. Antennæ as long as the head, spinulate, with long terminal spines; a tuft before the middle. Lateral comb of the eighth segment of six scales on a weak chitinization, each scale with trifid tip and long central spine. Air-tube moderately inflated, a sparse pecten of about six teeth reaching middle of tube; a three-haired tuft at outer third. Anal segment rather longer than wide, narrowly ringed by the plate; dorsal tuft a long hair and tuft on each side; a minute lateral tuft; ventral brush running the length of the segment. Anal gills pointed, somewhat longer than the segment.

Nicaragua, Panama, Colombia, Venezuela, Trinidad, the Guianas, and Brazil.

The larvæ live in temporary rain-pools.

PSOROPHORA (GRABHAMIA) INFINIS (Dyar and Knab)

JANTHINOSOMA INFINE Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 182, 1906.
Psorophora infine Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 594, 1917.
Psorophora infine Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 352, 1925.

Female—Proboscis moderate, slender, dark brown with a narrow yellowish ring beyond the middle. Occiput with small whitish scales in front, many erect black bristles behind. Mesonotum dark brown, with small whitish scales, scattered, forming an irregular mottled pattern; pleuræ and coxæ with small sparse whitish scales. Abdomen black above, the segments with narrow apical silvery white bands, divided in the middle and expanding laterally; venter with whitish scales mixed with a few black ones. Legs black, the femora coarsely speckled with whitish, a narrow whitish ring

before tip; tibiæ coarsely white-speckled; tarsi narrowly white-ringed at their bases. Wing-scales narrow, all dark.

Male—Coloration as in the female. Hypopygium (Plate XXIX, Fig. 93): Side-piece cylindrical, inwardly widened and truncate at tip, hairy. Claspette with a very narrow stem, soldered to the side-piece, then stout, short, with five ligulate setæ on outer margin. Clasper swollen mesially, tip and base narrow, terminal spine stout, reflexed. Tenth sternites narrow, ending in a long blunt tooth, inwardly directed. Ninth tergites narrow, with normal setæ only. Mesosome a pointed-tipped cylinder.

Larva (Plate XXIX, Fig. 93)—Head rounded, wider than long; upper head-hair a tuft, lower single, long. Antennæ as long as the head, spinulate, with long terminal spines; a tuft before the middle. Lateral comb of the eighth segment of six scales on a weak chitinization, each scale with trifid tip and long central spine. Air-tube moderately inflated, a sparse pecten of about six teeth reaching middle of tube; a three-haired tuft at outer third. Anal segment rather longer than wide, narrowly ringed by the plate; dorsal tuft a long hair and tuft on each side; a minute lateral tuft; ventral brush running the length of the segment. Anal gills pointed, somewhat longer than the segment.

Cuba, Santo Domingo.

The larvæ occur in transient rain-pools.

This is an Antillean form of *cingulata,* probably specifically distinct.

Genus HÆMAGOGUS Williston

Hæmagogus Williston, Trans. Ent. Soc. Lond., 1896, 271, 1896.
Stegoconops Lutz, Imp. Med., 1905, 83, 1905.
Cacomyia Coquillett, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 11, 16, 1906.
Hæmagogus Dyar, Ins. Ins. Mens., ix, 101, 1921.
Hæmagogus Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 483, 1924.
Hæmagogus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 428, 1925.

A small genus derived from *Aëdes,* the species of brilliant colors and day-flying habit. The development of scales has caused the disappearance of some pleural setæ, so that the appearance of the Sabethini is approached. Moreover the hind coxa has been raised, as in the Sabethini, and the more specialized of the *Hæmagogus* even have setæ on the postnotum. That these are simply characters of convergence toward the Sabethini, induced by a similar day-flying habit and not characters indicating relationship is proved by the structure of the male hypopygium and of the larvæ, which are typically aëdine.

The adults bite readily by day, but are never numerous on account of the restricted breeding habits. The larvæ inhabit the water in tree-holes, except one species which is found in ground-pools; but it is the rarest of the species.

Table of Species

ADULT

The species so much resemble each other, that beyond separating them into two subgenera, the species can not be certainly distinguished on coloration characters.

1. Claws of the female toothed; palpi of the male long . . . . . *(Stegoconops)*
   Claws of the female simple; palpi of the male short . . . . . *(Hæmagogus)*

MALE HYPOPYGIUM

1. Scales on inner side of side-piece rather narrow, lanceolate *(Stegoconops)* . . . 2
   These scales broad, or crooked and spine-like *(Hæmagogus)* 3
2. Stem of claspette slender, with a seta; filament a widely expanded rounded ribbed disk . . . . . *equinus* Theobald
   Stem of claspette thick, setose at tip; filament rather small slightly subapical, with one thickened margin . . . . . *panarchys* Dyar
   Stem of claspette slender, hirsute; filament short, broadly sickle-shaped, *uriartei* Shannon and Del Ponte
3. Scales on side-piece unmodified ribbed scales 4
   These scales distorted or changed to crooked spines . . . . . *chalcospilans* Dyar
4. Stem of claspette distinctly twice angled 5
   The stem straight, curved or once angled 6
5. Claspette filament widely expanded . . . . . *iridicolor* Dyar
   Claspette filament only slightly expanded . . . . . *regalis* Dyar and Knab
6. Stem of claspette swollen beyond the middle 7
   Stem of claspette not sharply swollen 8
7. Swelling terminal, the two blades of the filament lying on it, *argyromeris* Dyar and Ludlow
   Swelling subterminal, one blade of filament horn-like, the other reflexed and curved . . . . . *celeste* Dyar and Núñez Tovar
8. Tip of claspette obliquely cut, flatly expanded, the filament small or obsolete . 9
   Tip of claspette normal, not widened 10
9. Claspette stem thick, the filament appendiculate . *lucifer* Howard, Dyar, and Knab
   Stem slender, curved, the filament inconspicuous . . . . . *albomaculatus* Theobald
10. Claspette filament small, sickle-shaped . . . . . *anastationis* Dyar
    Claspette filament large, recurved, with one thickened margin . *janthinomys* Dyar

The following species is unknown in the male: *Splendens.*

LARVA

1. Comb-scales in a single row 2
   Comb-scales numerous, in a patch 3
2. Skin glabrous; comb-scales ten, free . . . . . *equinus* Theobald
   Skin pilose; comb-scales six, on a plate . . . . . *janthinomys* Dyar
3. Comb-scales in a large patch, the scales small, weak, basally smaller, *chalcospilans* Dyar
   Comb-scales in smaller patch, scales large, strong, alike 4
4. Secondary abdominal hairs in stout stellate bunches; lateral anal hair multiple, *lucifer* Howard, Dyar, and Knab
   These hairs in thin weak bunches; lateral anal hair one to three 5
5. Plate of anal segment small, reaching middle of side; finely spiculate posteriorly; lateral hair double or triple 6
   Plate of anal segment large; almost touching the brush plate; lateral hair single; strongly spiculate behind . . . . . *regalis* Dyar and Knab
6. Secondary abdominal hairs long and fine . . . . . *argyromeris* Dyar and Ludlow
   Secondary abdominal short and stout . . . . . *iridicolor* Dyar

The following species are unknown in the larva: *Panarchys, anastationis, uriartei, albomaculatus, celeste,* and *splendens.*

Subgenus STEGOCONOPS Lutz

HÆMAGOGUS (STEGOCONOPS) EQUINUS Theobald

HÆMAGOGUS EQUINUS Theobald, Entom., xxxvi, 282, 1903.
HÆMAGOGUS CAPRICORNII Lutz, in Bourroul, Mosq. do Bras., 66, 1904.
AËDES PHILOSOPHICUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 190, 1906.
AËDES AFFIRMATUS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 164, 1906.
Stegoconops capricorni and *Cacomyia equina* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 217 and 220, 1911.
HÆMAGOGUS SPEGAZZINII Brèthes, Bol. Inst. Ent. y Pat. Veg., i, 39, 1912.
Hæmagogus equinus and *capricornii* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 871 and 875, 1917.
Hæmagogus (Stegoconops) equinus and *capricornii* Dyar, Ins. Ins. Mens., ix, 102 and 103, 1921.
Hæmagogus capricornii Dyar, Ins. Ins. Mens., ix, 150, 1921.
Hæmagogus (Stegoconops) equinus and *capricornii* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 430 and 431, 1925.
Hæmagogus equinus Dyar, Ins. Ins. Mens., xiii, 138, 1925.

Female—Proboscis long and very slender, blue-black. Palpi about one-sixth as long as proboscis. Occiput bright metallic green-blue, silvery on the side below. Prothoracic lobes with silvery scales. Mesonotum metallic green-blue; pleuræ and coxæ with silver scales. Abdomen metallic green-blue with silvery basal segmental bands on the posterior segments, forming spots laterally; venter similarly blue and silver banded. Legs blue-black. Wing-scales narrow, dark.

Male—Coloration as in the female. Palpi slender, nearly as long as the proboscis. Hypopygium (Plate XXIX, Fig. 94): Side-piece conical; a small lobe at extreme base bearing a number of stiff hairs. A number of narrow lanceolate large scales on the inner side of side-piece. Claspette long, swollen outwardly and with a single seta; filament broad, leaf-like, ribbed, broadly inserted. Clasper slender, short, uniform, with a terminal spine half as long as itself. Tenth sternites columnar with a semicircular thickened tip. Ninth tergites undeveloped. Mesosome a broad cylinder, widening outwardly and pointed, with a transverse piece at tip.

Larva (Plate XXIX, Fig. 94)—Head rounded. Head-hairs single, ante-antennal tuft in three. Antennæ moderate, slender, very sparsely spined. Lateral comb of the eighth segment of twelve scales in a single row; single scale spine-like, fringed with very short spinules. Short abdominal hairs in stellate tufts. Air-tube stout, three times as long as wide; pecten reaching nearly to middle; a three-haired tuft beyond. Anal segment with a dorsal plate reaching well down the sides, spinose on posterior margin. Dorsal tuft a long hair and brush on each side; a lateral multiple tuft; ventral brush well developed, with hairs preceding the barred area and a small triangular plate on each side. Anal gills moderate, about as long as the segment.

Mexico, Costa Rica, Guatemala, Panama, Venezuela, Trinidad, the Guianas, Jamaica, Brazil, Argentina.

The larvæ live in the water in tree-holes. Mr. R. C. Shannon points out to me that *spegazzinii* Brèthes may be a different species; but positive opinion must await the discovery of the male.

HÆMAGOGUS (STEGOCONOPS) PANARCHYS Dyar

HÆMAGOGUS (STEGOCONOPS) PANARCHYS Dyar, Ins. Ins. Mens., ix, 104, 1921.
Hæmagogus (Stegoconops) panarchys Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 430, 1925.
Hæmagogus (Stegoconops) panarchys Dyar, Ins. Ins. Mens., xiii, 30, 1925.

Female—Proboscis long and very slender, blue-black. Palpi about one-sixth as long as proboscis. Occiput bright metallic green-blue, silvery on the side below. Prothoracic lobes with silvery scales. Mesonotum metallic green-blue; pleuræ and coxæ with silvery scales. Abdomen metallic green-blue with rather broad silvery basal segmental bands widening to form spots laterally; venter similarly blue and silver banded. Legs blue-black. Wing-scales narrow, dark.

Male—Coloration as in the female. Palpi slender, nearly as long as the proboscis. Hypopygium (Plate XXX, Fig. 95): Side-piece conical; a small lobe at extreme base bearing a number of stiff hairs. A number of narrow lanceolate large scales on the inner side of side-piece. Claspette thick, curved, hairy at base and tip, a small notch on the not hairy side, the filament inserted slightly subapically, small, leaf-like, with one thickened margin. Clasper slender, small, with a terminal spine two-thirds as long as itself. Tenth sternites columnar, one margin thickened, the tip broadly thickened, rounded. Ninth tergites undeveloped. Mesosome a broad cylinder with pointed tip, from which a small T-shaped process projects.

Larva—Unknown.

Ecuador (Guayaquil).

HÆMAGOGUS (STEGOCONOPS) URIATEI Shannon and Del Ponte

HÆMAGOGUS URIARTEI Shannon and Del Ponte, new species (here published).

"*Female*—Proboscis long and slender, black with slight blue reflection. Occiput metallic green. Prothoracic lobes silvery white with slight green reflection. Mesonotum coppery green, pleuræ and coxæ with white scales. Abdomen metallic green and blue; venter with silvery basal segmental bands. Legs black with blue reflection, the femora pale at extreme base. Wing-scales black. Claws toothed.

"*Male*—Coloration of the female, the palpi slender and short, about one-sixth the length of proboscis. Hypopygium: Side-piece moderate, conical, with a row of rather broadly lanceolate scales on the inner margin; inner basal angle slightly thickened and bearing long fine setæ. Clasper short, slender, curved, with a thick terminal spine, half as long as itself. Claspette with stout uniform slightly bent stem, inwardly hirsute throughout and a single seta at outer third; filament short, curved, and pointed, the outer margin thickened and lined. Tenth sternites large, narrow, bluntly rounded, the thickened tip forming a blunt point on one side. Mesosome large, widened outwardly, then abruptly reduced to a short point."—Shannon and Del Ponte.

Larva—This is not before me.

Argentina.

I have two females, received from Dr. Juana Petrocchi a number of years ago, determined at the time as *spegazzinii*, and the male type of *uriatei*, the

latter kindly deposited in the U. S. National Museum by the courtesy of the Argentine Government and the good offices of Mr. R. C. Shannon. The characters of toothed claws in the female and short palpi in the male are contradictory; but there is no reason to doubt the correctness of the association of the sexes.

Subgenus HÆMAGOGUS Williston

HÆMAGOGUS (HÆMAGOGUS) REGALIS Dyar and Knab

HÆMAGOGUS REGALIS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 167, 1906.
Hæmagogus regalis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 225, 1911.
Hæmagogus albomaculatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I. (pro parte) iv, 868, 1917.
Hæmagogus (Hæmagogus) regalis Dyar, Ins. Ins. Mens., ix, 105, 1921.
Hæmagogus (Stegoconops) regalis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 430, 1925.

Female—Proboscis long and very slender, blue-black. Occiput metallic blue-green, a narrow silvery border behind the eyes joining a spot below. Prothoracic lobes with green scales. Mesonotum bright metallic blue-green; pleuræ and coxæ with silver scales. Abdomen metallic blue-violet, with basal segmental silvery bands on the posterior segments, laterally forming silver spots the whole length; venter banded, silvery at base, blue distally. Legs blue-black. Wing-scales narrow, dark.

Male—Coloration as in the female; palpi as short as in the female. Hypopygium (Plate XXX, Fig. 96): Side-piece broadly conical; a large lobe on the inner side at base bearing fine hairs; many broadly lanceolate large scales within outwardly. Claspette with slender sinuate stem, widening on outer third with narrow leaf-like filament thickened on one edge. Clasper long, slender, with subapically inserted short rounded broad appendage. Tenth sternites long, narrow, roundedly thickened at tip. Ninth tergites undeveloped. Mesosome a broad weak cylinder.

Larva (Plate XXX, Fig. 96)—Head rounded; upper head-hair single, lower double. Secondary abdominal hairs long and sparsely stellate (three or four in a tuft); lateral comb of the eighth segment of many scales in a patch, each scale large and thick, smooth on the sides, very minutely feathered at tip. Air-tube short and thick, rounded at tip, pecten reaching distinctly beyond the middle, followed by a three-haired tuft. Anal segment with the plate reaching well toward the ventral line, spinose on posterior edge.

Salvador.

The larvæ live in the water in coconut-husks.

HÆMAGOGUS (HÆMAGOGUS) IRIDICOLOR Dyar

STEGOCONOPS LUCIFER Howard, Dyar, and Knab (not Howard, Dyar, and Knab), Mosq. No. and Cent. Am. and W. I., ii, Plate 77, 1912.
HÆMAGOGUS (HÆMAGOGUS) IRIDICOLOR Dyar, Ins. Ins. Mens., ix, 106, 1921.
Hæmagogus (Hæmagogus) iridicolor Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 433, 1925.

Female—Proboscis long and very slender, blue-black. Occiput metallic blue-green, a narrow silvery border behind the eyes joining a spot below. Prothoracic lobes with green scales. Mesonotum bright metallic blue-green;

pleuræ and coxæ with silver scales. Abdomen metallic blue-violet, with lateral silver spots more or less joined the whole length; venter banded, silvery at base, blue distally. Legs blue-black. Wing-scales narrow, dark.

Male—Coloration as in the female; palpi as short as in the female. Hypopygium (Plate XXX, Fig. 97): Side-piece broadly conical; a lobe on the inner side at base bearing fine hairs; many broadly lanceolate large scales within outwardly. Claspette with slender sinuate stem, narrowed on outer third with broad fan-shaped filament broadly inserted. Clasper long, slender, with subapically inserted short, rounded, broad appendage. Tenth sternites long, narrow, roundedly thickened at tip. Ninth tergites undeveloped. Mesosome a broad weak cylinder.

Larva (Plate XXX, Fig. 97)—Head rounded quadrate; antennæ moderate, slender, a hair at the middle. Head-hairs low on the face, upper single, long, lower double, small. Lateral comb of the eighth segment of a moderate number of large similar spines. Air-tube about two and a half times as long as wide, conical apically, the pecten reaching the middle of the tube, followed by a four-haired tuft. Anal segment about as long as wide; the plate reaching the middle of the side, finely spinulate behind; ventral brush with a small triangular plate each side; dorsal tuft a long hair and brush each side; lateral hair triple. (This larva from Port Limon, Costa Rica, from coconut-husks may not be correctly referred.)

Costa Rica (Higuito and Alajuela).

The larvæ live in the water in bamboo-joints.

HÆMAGOGUS (HÆMAGOGUS) ANASTATIONIS Dyar

HÆMAGOGUS ANASTATIONIS Dyar, Ins. Ins. Mens., ix, 155, 1921.

Female—Proboscis long and very slender, blue-black. Occiput metallic blue-green, a narrow silvery border behind the eyes joining a spot below. Prothoracic lobes with green scales. Mesonotum bright metallic blue-green; pleuræ and coxæ with silvery scales. Abdomen metallic blue-violet, laterally with silver spots more or less confluent the whole length; sometimes traces of silver dorsally; venter banded, silvery at base, blue distally. Legs blue-black. Wing-scales narrow, dark.

Male—Coloration as in the female; palpi as short as in the female. Hypopygium, (Plate XXX Fig. 98): Side-piece narrowly conical; a small area of stiff hairs at extreme base; setæ within and some lanceolate scales. Claspette with rather slender and moderate hirsute stem; filament thickly sickle-shaped. Clasper short, rather slender, with terminal spine half as long as itself. Tenth sternites narrow, roundedly hooked at tip. Ninth tergites undeveloped. Mesosome a broad plate with revolute edges, widening outwardly.

Larva—Unknown.

Costa Rica (Puntarenas).

HÆMAGOGUS (HÆMAGOGUS) ARGYROMERIS Dyar and Ludlow

HÆMAGOGUS ARGYROMERIS Dyar and Ludlow, the Mil. Surg., xlviii, 679, 1921.

HÆMAGOGUS GLADIATOR Dyar, Ins. Ins. Mens., ix, 108, 1921.

Hæmagogus (Hæmagogus) gladiator and *argyromeris* Dyar, Ins. Ins. Mens., ix, 108 and 109, 1921.

Hæmagogus (Hæmagogus) gladiator and *argyromeris* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam Holland), No. xxi, Afd. Trop. Hyg., No. 13, 434, 1925.

Hæmagogus argyromeris Dyar, Ins. Ins. Mens., xiii, 139, 1925.

Female—Proboscis rather long, blue-black. Occiput and prothoracic lobes with metallic shining blue-green scales. Mesonotum shining blue-green. Abdomen blue-green, bluer than the mesonotum, the posterior segments with basal transverse indistinct silvery bands; these form spots laterally the whole length, more or less confluent, especially basally; venter blue-black, the segments silvery at bases. Legs blue-black. Wing-scales narrow, all dark.

Male—Coloration as in the female, the palpi as short. Hypopygium (Plate XXXI, Fig. 101): Side-piece stoutly conical, a small area at extreme base of stout hairs; many broadly lanceolate scales within toward tip. Claspette rather slender, curved, the tip expanded into a round disk; filament broad but sharp, divided into a broad and a narrow flap which are reversed upon the disk. Clasper slender, enlarged club-shaped at tip; spine thick, cylindrical, blunt, inserted subapically. Tenth sternites moderate, the tip recurved and pointed. Ninth tergites undeveloped. Mesosome a broad weak cylinder with linear appressed appendage.

Larva (Plate XXXI, Fig. 101)—Head rounded; upper head-hair single, lower double, anteantennal tuft in three. Head-hairs and well-developed median tufts far down toward mouth. Antennæ slender, a single hair near middle. Lateral comb of the eighth segment of many thick spines in a narrow patch. Air-tube conical, about two and a half times as long as wide; pecten running to near middle, followed by a three-haired tuft. Anal segment longer than wide, the plate reaching middle of the side; dorsal tuft a long hair and brush on each side; lateral tuft double, long; ventral brush existing posteriorly, with a little triangular chitinous plate on each side. Anal gills rounded, short.

Panama (Canal Zone, throughout).

The larvæ live in the water in tree-holes.

HÆMAGOGUS (HÆMAGOGUS) LUCIFER Howard, Dyar, and Knab

STEGOCONOPS LUCIFER Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., ii, pl. 23, fig. 164, 1912.

Hæmagogus (Hæmagogus) lucifer Dyar, Ins. Ins. Mens., ix, 107, 1921.

Hæmagogus (Hæmagogus) lucifer Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 434, 1925.

Hæmagogus lucifer Dyar, Ins. Ins. Mens., xiii, 139, 1925.

Female—Proboscis long, slender, blue-black. Occiput and prothoracic lobes with metallic shining blue-green scales. Mesonotum shining blue-green. Abdomen blue-green, bluer than the mesonotum, the posterior segments with traces of basal transverse indistinct silvery bands; these form spots laterally the whole length, more or less confluent, especially basally; venter blue-black, the segments silvery at bases. Legs blue-black. Wing-scales narrow, all dark.

Male—Coloration as in the female, the palpi as short. Hypopygium (Plate XXXI, Fig. 99): Side-piece stoutly conical, a large tuberculate area of minute hairs at extreme base; many broadly lanceolate scales within toward tip. Claspette with sinuate stem, narrowed basally and subapically; tip expanded, cup-shaped, the filament small, narrow, arising from the outer angle of the tip. Clasper moderate, a little roundedly expanded apically. Spine short, rounded, subfimbriate, subapical. Tenth sternites narrow, enlarged and subdenticulate at tip. Ninth tergites undeveloped. Mesosome a stout cylinder, roundedly capitate, with transverse, narrow appendage.

Larva (Plate XXXI, Fig. 99)—Secondary abdominal hairs in tufts of seven to nine. Lateral comb of the eighth segment of rather small scales in a triangular patch, the single scale thick, long, smooth on the sides. Air-tube rather short, pecten not reaching the middle, followed by a two-haired tuft. Anal segment scarcely half encircled by the plate, which has an irregular edge; a small triangular plate beside the ventral brush.

Panama (Atlantic side).

The larvæ live in the water in tree-holes, bamboo, and similar locations.

HÆMAGOGUS (HÆMAGOGUS) CHALCOSPILANS Dyar

Hæmagogus (Hæmagogus) chalcospilans Dyar, Ins. Ins. Mens., ix, 110, 1921.

Hæmagogus (Hæmagogus) chalcospilans Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 434, 1925.

Hæmagogus chalcospilans Dyar, Ins. Ins. Mens., xiii, 140, 1925.

Female—Proboscis rather long, blue-black. Occiput and prothoracic lobes with metallic shining blue-green scales. Mesonotum shining blue-green. Abdomen blue-green, bluer than the mesonotum, the posterior segments with basal transverse indistinct silvery bands; these form spots laterally the whole length, more or less confluent, especially basally; venter blue-black, the segments silvery at bases. Legs blue-black. Wing-scales narrow, all dark.

Male—Coloration as in the female, the palpi as short. Hypopygium (Plate XXXI, Fig. 100): Side-piece stoutly conical, many broadly lanceolate scales within toward tip, irregular and asymmetrical and mixed with crooked spines. Claspette long, the stem rather irregular, expanding outwardly; filament broadly inserted, large and bladder-like, with a broad forked tail resting over the tip of the stem. Clasper rather short and moderate, with rather long blunt terminal spine. Tenth sternites narrow, small, the tip with a small side-tooth. Ninth tergites undeveloped. Mesosome a small cylinder.

Larva (Plate XXXI, Fig. 100)—Head rounded; antennæ small, smooth, with a single hair near the middle. Skin granular-glabrous; secondary abdominal hair tufts long, in threes and fours. Lateral comb of the eighth segment of many scales in a large triangular patch, four or five scales deep, larger posteriorly, smooth, with minutely feathered tips. Air-tube short, about one and a half times as long as wide; pecten not reaching the middle. Anal segment three-fourths encircled by the plate. Anal gills short, bud-shaped.

Panama (Canal Zone, throughout).

The larvæ live in small ground-pools, in rocks, etc. Although a ground-pool breeder, this is the rarest of the Panama *Hæmagogus*.

HÆMAGOGUS (HÆMAGOGUS) SPLENDENS Williston

Hæmagogus splendens Williston, Trans. Ent. Soc. Lond., 1896, 271, 1896.

Hæmagogus cyaneus Surcouf and Gonzales Rincones (not Fabricius), Ess. Dipt. Vul. Venez., 224, 1911.

Hæmagogus splendens Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 865, 1917.

Hæmagogus (Hæmagogus) splendens Dyar, Ins. Ins. Mens., ix, 113, 1921.

Hæmagogus (Hæmagogus) splendens Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 435, 1925.

Female—Proboscis rather long, blue-black. Occiput and prothoracic lobes with metallic shining blue-green scales. Mesonotum shining blue-green. Abdomen blue-green, bluer than mesonotum, the posterior segments with basal transverse indistinct silvery bands; these form spots laterally the whole length, more or less confluent, especially basally; venter blue-black, the segments silvery at bases. Legs blue-black. Wing-scales narrow, all dark.

Male—Coloraton as in the female, the palpi as short.

Larva—Unknown.

St. Vincent (Lesser Antilles).

The male hypopygium has not been described, and until that has been done the identity of this species is uncertain. It is probably the same as one of the mainland species, of which three are at present known, *janthinomys, albomaculatus,* and *celeste.* No material in *Hœmagogus* from St. Vincent is before me.

HÆMAGOGUS (HÆMAGOGUS) JANTHINOMYS Dyar

HÆMAGOGUS (HÆMAGOGUS) JANTHINOMYS Dyar, Ins. Ins. Mens., ix, 112, 1921.

Hœmagogus (Hœmagogus) janthinomys Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 435, 1925.

Female—Proboscis rather long, blue-black. Occiput and prothoracic lobes with metallic shining blue-green scales. Mesonotum shining blue-green. Abdomen blue-green, bluer than mesonotum, the posterior segments with basal transverse indistinct silvery bands; these form spots laterally the whole length, more or less confluent, especially basally; venter blue-black, the segments silvery at bases; legs blue-black. Wing-scales narrow, all dark.

Male—Coloration as in the female, the palpi as short. Hypopygium (Plate XXXII, Fig. 103): Clasper conical, with many broad scales within toward tip. Claspette with somewhat slender irregular stem, hirsute basally, produced into a long tip at right angles; filament resting on this tip, bluntly sac-shaped at base, the tip with two spurs, equaling the produced tip. Clasper short, rather stout, the spine slightly subapical, very long, almost half as long as the clasper. Tenth sternites long, narrow, the tip rounded and obliquely chitinized. Ninth tergites undeveloped. Mesosome a broad plate with revolute margins, widening outwardly, with central point.

Larva (Plate XXXII, Fig. 103)—Head rounded, antennæ rather slender, smooth, a single hair near the middle. Head-hairs in twos, situated low on the face; anteantennal tuft in three. Skin densely and coarsely hairy. Lateral comb of eighth segment of eight scales in a straight row, attached to a small chitinous plate. Air-tube two and a half times as long as wide; pecten reaching near the middle, followed by a two-haired tuft. Anal segment longer than wide, spined posteriorly. Dorsal tuft a long hair and brush on each side; lateral tuft six-haired and long; ventral brush with tufts preceding the barred area; a small triangular plate on either side. Anal gills short, stout, pointed.

Trinidad.

The larvæ occur in the water in tree-holes.

HÆMAGOGUS (HÆMAGOGUS) ALBOMACULATUS Theobald

HÆMAGOGUS ALBOMACULATUS Theobald, Mon. Culic., iii, 308, 1903.
Cacomyia albomaculatus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 225, 1911.
Hæmagogus albomaculatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I. (pro parte), iv, 868, 1917.
Hæmagogus (Hæmagogus) albomaculatus Dyar, Ins. Ins. Mens., ix, 113, 1921.
Hæmagogus (Hæmagogus) albomaculatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 435, 1925.

Female—Proboscis rather long, blue-black. Occiput and prothoracic lobes with metallic shining blue-green scales. Mesonotum shining blue-green. Abdomen blue-green, bluer than mesonotum, the posterior segments with basal transverse indistinct silvery bands; these form spots laterally the whole length, more or less confluent, especially basally; venter blue-black, the segments silvery at bases. Legs blue-black. Wing-scales narrow, all dark.

Male—Coloration as in the female, the palpi as short. Hypopygium (Plate XXXII, Fig. 104): Side-piece stoutly conical, a small lobe at base bears stout hairs. Claspette stout and even, narrowest centrally, the tip triangularly widened and truncate; filament small, inserted on the whole tip, but projecting from the outer angle as a short, stout spine. Clasper small, rather stout; spine terminal, as long as half the clasper. Ninth tergites stout, rather broad, with rounded strongly chitinized thickened tips. Ninth tergites narrow, not separated into lobes, bearing an irregular row of very coarse long hairs. Mesosome an elliptical plate.

Larva—Unknown.

British Guiana.

Theobald described this from one female from British Guiana, the females being specifically unrecognizable in this group. The present male from the same general region has been arbitrarily assigned.

HÆMAGOGUS (HÆMAGOGUS) CELESTE Dyar and Núñez Tovar

HÆMAGOGUS CELESTE Dyar and Núñez Tovar, Ins. Ins. Mens., xiv, 152, 1927.

Female—Proboscis rather long, blue-black. Occiput and prothoracic lobes with metallic shining blue-green scales. Mesonotum shining blue-green. Abdomen blue-green, bluer than mesonotum, the posterior segments with basal transverse indistinct silvery bands; these form spots laterally the whole length, more or less confluent, especially basally; venter blue-black, the segments silvery at bases. Legs blue-black. Wing-scales narrow, all dark.

Male—Coloration as in the female, the palpi short. Hypopygium (Plate XXXII, Fig. 102): Side-piece stoutly conical, with an area of fine hairs near base; large lanceolate setæ within toward tip. Claspette stem stout, hirsute within, roundedly angled and humped beyond middle, then running outwardly nearly at right angles. Filament doubly ended, transverse, outer point long, horn-shaped, inner slender, curled, and divided narrowly. Clasper rather slender, moderate, the spine not quite terminal, almost as long as half the clasper. Tenth sternites long, narrow, with rounded thickened tips. Ninth tergites undeveloped. Mesosome a broad conical plate, on each side of which are two appendages, the longer blunt-tipped, the shorter pointed.

Larva—Unknown.

Venezuela and Trinidad.

The larvæ occur in the water in tree-holes.

Genus AËDES Meigen

AËDES Meigen Syst. Beschr. Bek. Eur. Zweifl. Ins., i, 13, 1818.
OCHLEROTATUS Lynch Arribálzaga, Rev. Mus. de La Plata, i, 374, 1891.
TÆNIORHYNCHUS Lynch Arribálzaga, Rev. Mus. de La Plata, i, 374, 1891.
STEGOMYIA Theobald, Liverp. School. Trop. Med., Mem., iv, app. iii, 1901.
FINLAYA Theobald, Mon. Culic., iii, 281, 1903.
HOWARDINA Theobald, Mon. Culic., iii, 287, 1903.
AEDIMORPHUS Theobald, Mon. Culic., iii, 290, 1903.
SKUSEA Theobald, Mon. Culic., iii, 291, 1903.
VERRALLINA Theobald, Mon. Culiic., iii, 295, 1903.
MACLEYA Theobald, Entom., xxxvii, 154, 1903.
CATAGEIOMYIA Theobald, Thomps. Yates, and Johnst. Lab. Repts., v, pt. 2, 1, 1903.
CULICELSA Felt, Bull. 79, N. Y. Sta. Mus., 391b, 1904.
CULICADA Felt, Bull. 79, N. Y. Sta. Mus., 391b, 1904.
ECCULEX Felt, Bull. 79, N. Y. Sta. Mus., 391c, 1904.
PROTOCULEX Felt, Bull. 79, N. Y. Sta. Mus., 391d, 1904.
SCUTOMYIA Theobald, Entom., xxxvii, 77, 1904.
DANIELSIA Theobald, Entom., xxxvii, 78, 1904.
HULECŒTEOMYIA Theobald, Entom., xxxvii, 163, 1904.
PSEUDOCULEX Dyar, Proc. Ent. Soc. Wash., vii, 45, 1905.
GUALTERIA Lutz, Imprensa Med., 65, 1905.
PHAGOMYIA Theobald, Gen. Ins., Dipt., 26 fasc., 14, 1905.
POLYLEPTIOMYIA Theobald, Gen. Ins., Dipt., 26 fasc., 15, 1905.
LEPIDOTOMYIA Theobald, Gen. Ins., Dipt., 26 fasc., 15, 1905.
REEDOMYIA Ludlow, Can. Ent., xxxvii, 94, 1905.
PECOMYIA Theobald, Journ. Econ. Biol., i, 23, 1905.
PSEUDOGRABHAMIA Theobald, Journ. Bombay Nat. Hist., xvi, 243, 1905.
CHRYSOCONOPS Goeldi, Os Mosq. no Para, 114, 1905.
GYMNOMETOPA Coquillett, Proc. Ent. Soc. Wash., vii, 183, 1905.
LEPIDOPLATYS Coquillett, Science, n. s., xxiii, 134, 1906.
QUASISTEGOMYIA Theobald, 2d Rep. Wellc. Res. Lab., 69, 1906.
DUTTONIA Newstead, Ann. Trop. Med. and Par., i, 17, 1907.
PSEUDOSKUSEA Theobald, Mon. Culic., iv, 192, 1907.
PSEUDOHOWARDINA Theobald, Mon. Culic., iv, 223, 1907.
NEOMACLEAYA Theobald, Mon. Culic., iv, 228, 1907.
PROTOMACLEAYA Theobald, Mon. Culic., iv, 253, 1907.
BANKSINELLA Theobald, Mon. Culic., iv, 468, 1907.
MIMETECULEX Theobald, 3d Rep. Wellc. Res. Lab., 258, 1908.
GEITOMYIA Leicester, Stud. Ins. Med. Res., Fed. Mal. Sta., iii, pt. 3, 134, 1908.
AIORETOMYIA Leicester, Stud. Ins. Med. Res., Fed. Mal. Sta., iii, pt. 3, 185, 1908.
KINGIA Theobald, Mon. Culic., v, 135, 1910.
BATHOSOMYIA Theobald, Mon. Culic., v, 135, 1910.
MYXOSQUAMUS Theobald, Mon. Culic., v, 225, 1910.
NEPECOMYIA Theobald, Mon. Culic., v, 261, 1910.
STENOSCUTUS Theobald, Mon. Culic., v, 263, 1910.
MOLPEMYIA Theobald, Mon. Culic., v, 479, 1910.
LESLIEOMYIA Christophers, Palaudism, No. 2, 68, 1911.
ANDERSONIA Strickland, Entom., xliv, 250, 1911.
Aëdes Dyar, Ins. Ins. Mens., viii, 103, 1920.
Aëdes Dyar, Proc. U. S. Nat. Mus., lxii, 41, 1922.
Aëdes Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 484, 1924.
Aëdes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 358, 1925.
CONOPOSTEGUS Dyar, Ins. Ins. Mens., xiii, 141, 1925.

Post-spiracular setæ present; spiracular setæ absent; abdomen of the female pointed.

A large genus of world-wide distribution. All of the species bite, the large

majority being crepuscular and nocturnal, although attacking by day in favored situations. Only one species out of the hundreds is a known disease carrier, and that belongs to one of the least specialized subgenera, not found in America otherwise, this species probably having been imported with commerce. All the native *Aëdes* are harmless, although as they are ready biters, and as they occasionally occur in countless myriads, they became extremely annoying to man and beast. To this genus belong the hordes of mosquitoes that infest the arctic regions in summer, those following floods, particularly in western North America, and the notorious "New Jersey Mosquito," which formerly infested so many coastal towns along the Atlantic seaboard. Disregarding two subgenera with one species each, *Aëdimorphus* and *Stegomyia*, our *Aëdes* are of two sources. First those of northern distribution, inhabiting the Canadian region of North America. This fauna is continuous with that of the forested regions of north Europe and Asia, many of the species being identical or representative. It extends down the California Sierra and down the Rocky Mountain system, being represented by one species in Arizona and the heights of Mexico, but not farther so far as known. The other group is of endemic origin, in the American tropics. A series of subgenera lead up from the peculiar forms inhabiting tree-holes and the water in plant tissues, such as *Howardina* and *Finlaya*, to the marsh and rock-hole loving *Tæniorhynchus* and the open-pool inhabiting *Ochlerotatus*. The development did not stop here in America. *Psorophora* and *Hæmagogus* also arose from this stem.

Table of Species

ADULT

1. Claws of the female toothed, at least on front and middle legs 2
   Claws of the female simple . (*Howardina*) 51
2. Tarsi not white-marked 3
   Tarsal joints or some of them white-marked 30
3. Thoracic integument yellow 4
   Thoracic integument brown or blackish 5
4. Mesonotum yellow with black marks . . . . . *fulvus* Wiedemann
   (Compare *flavipes* Macquart, *annuliferus* Blanchard, *annuliventris* Blanchard.)
   Mesonotum without black marks . . . . . *hortator* Dyar and Knab
5. Mesonotum with silvery or golden markings, or where these are absent (♀ *nubilus*) the white markings of abdomen and tibiæ are silvery white . . 6
   Mesonotum gray, brown, or golden yellow with a single median dark longitudinal band, two narrow lines, or unmarked 16
6. Mesonotum with two yellowish or yellowish silvery stripes on a dark ground 7
   Mesonotum marked with silver, rarely absent 8
   Mesonotum marked with dull gold, in a median line or diffused, *tortilis* Theobald
7. The two yellow lines very broad . . . . . *obturbator* Dyar and Knab
   These lines moderate or narrow . . . . . { *trivittatus* Coquillett / *angustivittatus* Dyar and Knab }
8. Silver on mesonotum in a broad stripe not reaching scutellum 9
   Silver in a broad or narrow line reaching scutellum, or mesonotum entirely silvered (in the male) 10
   Silver on the sides of mesonotum, the center dark . . . . . *triseriatus* Say
9. From the Bahamas and Cuba . . . . . *condolescens* Dyar and Knab
   From North Carolina to Florida and the Gulf States . . *infirmatus* Dyar and Knab
   From Mexico to Panama and Ecuador . . . . . *euplocamus* Dyar and Knab
   From the Antilles, continental eastern South America to Argentina,
   scapularis Rondani

10. Mesonotum broadly silvery or yellowish silvery centrally 11
Mesonotum narrowly silvery or without silver in the female 12

11. From Venezuela to Brazil . . . . . *crinifer* Theobald
From Argentina . . . . . *lynchii* Brèthes

12. Mid femora with a median white spot . . . . . leucocelænus Dyar and Shannon
Mid femora without a white spot 13

13. Both sexes without silver or mesonotum . . . . . *iguazu* Shannon and Del Ponte
Male with narrow silver stripe, female usually unmarked . . . . *nubilus* Theobald
Both sexes with narrow silver stripe 14
Female with a silver stripe, male mesonotum entirely silvery 15

14. New Jersey to Florida and Louisiana . . . . . *atlanticus* Dyar and Knab
From Florida and the Gulf States . . . . . *tormentor* Dyar and Knab
From Central America, Panama, tropical South America to Brazil, *serratus* Theobald

15. From New Jersey to the Gulf States . . . . . *dupreei* Coquillett
From Panama . . . . . *hastatus* Dyar
From Surinam . . . . . *eucephalæus* Dyar
From Trinidad . . . . . *oligopistus* Dyar

16. Wing-scales markedly bicolored 17
Wing-scales uniformly dark, or nearly so 19

17. Mesonotum brown and gray intermixed; wing-scales mostly black with white scales subcostally and in cell . . . . . *niphadopsis* Dyar and Knab
Mesonotum longitudinally striped; wing-veins black and white alternating . . 18

18. Abdomen with median dorsal pale stripe . . . . . *spencerii* Theobald
Abdomen generally without the median stripe . . . . . *idahoensis* Theobald

19. Abdomen with median dorsal pale stripe . . . . . *albifasciatus* Macquart
Abdomen without dorsal pale stripe 20

20. Mesonotum with central broad undivided dark band 21
Mesonotum with divided central dark band or none 23

21. Mesonotum with median band very broad, lateral lighter color narrow . . . 22
Mesonotum creamy yellow at the sides . . . . . *hirsuteron* Theobald
Mesonotum golden or reddish brown at the sides; median stripe sometimes divided or obsolete . . . . . *punctor* Kirby
Mesonotum light yellowish at the sides, with illy contrasted median brown band . . . . . *prolixus* Dyar

22. Yellow lateral lines straight and narrow . . . . . *aurifer* Coquillett
These lines narrowed posteriorly, yellow . . . . . *thibaulti* Dyar and Knab
These lines narrowed posteriorly, pale gray . . . . . *trichurus* Dyar

23. Mesonotum with paired brown lines 24
Mesonotum uniformly colored, without lines 25

24. Mesonotum golden yellowish, the lines narrow, well apart; a very small species . . . . . *gonimus* Dyar and Knab
Mesonotum yellowish, lines usually narrow and well separated; a very small species . . . . . *aldrichi* Dyar and Knab
Mesonotum yellow or gray, very variable, sometimes suffused with brown centrally, or the lines obsolete; median-sized to rather large species,
communis DeGeer
pearyi Dyar and Shannon
implacabilis Walker
Mesonotum yellow (rarely gray), the dark lines broad, heavy, well contrasted and passing back around the antescutellar space; a rather large species, *pionips* Dyar
Mesonotum yellow, lines slender, often conjoined into a median stripe; legs very deep black . . . . . *diantœus* Howard, Dyar, and Knab

Mesonotum yellow; the side-stripes darker and heavier than the median pair; a small species . . . . . *cyclocerculus* Dyar
Mesonotum yellow, lines moderate, normal; a medium-sized species, *leuconotips* Dyar
Mesonotum yellow to brown, variable; lines present or absent . *hexodontus* Dyar
Mesonotum yellow to brown, lines distinct, broad, sometimes joined mesially; a large species . . . . . *aboriginis* Dyar
Mesonotum gray with central brown shade; lines fine, dark; a small species, *impiger* Walker
Mesonotum dull yellow; lines brown, diffused and more or less suffused in a brown shade . . . . . *cacothius* Dyar
Mesonotum olivaceous brown, darker shaded centrally; lines diffused or obsolete . . . . . *ventrovittis* Dyar
Mesonotum mossy yellow; lines narrow and very approximate, *pullatus* Coquillett
Mesonotum very light, lines broad, black . . . . . *muelleri* Dyar

25. Thorax with long hairs, especially below; arctic species 26
Thorax with normal setæ in the female 27

26. Somewhat larger, more hairy, the mesonotum brown-scaled . . . *alpinus* Linnæus
Somewhat smaller, less hairy, the mesonotum in the female slightly variegated, and sometimes with a pair of pale spots . . . . . *nearcticus* Dyar

27. Mesonotum light gray, with traces of dark lines or a central dark shade, sometimes covering the whole mesonotum; small species 28
Mesonotum uniformly dark brown, somewhat bronzy; a medium-sized species, fond of entering houses . . . . . *intrudens* Dyar
Mesonotum with illy contrasted dark lines or uniformly brown; subarctic species 29
Mesonotum uniformly golden brown; abdomen spotted . . . . . *thelcter* Dyar
Mesonotum with contrasting metallic golden scales . . . . . *euiris* Dyar
Mesonotum uniformly brown; abdomen with continuous lateral white line; male with the palpi short . . . . . *cinereus* Meigen

28. Wing-spots distinct . . . . . *pacificensis* Hearle
Wing-spots indistinct or absent . . . . . *cataphylla* Dyar

29. From the Alaskan coastal region . . . . . *punctodes* Dyar
From the Labrador coast . . . . . *labradoriensis* Dyar and Shannon

30. Tarsal white rings or marks regular, similar on all joints 31
These marks irregular, some joints marked, others not 49

31. Tarsi with white rings involving both ends of the joints 32
Tarsal white rings basal only 35

32. Wing-scales markedly bicolored 33
Wing-scales uniformly dark, or nearly so 34

33. Larger species; wing-scales evenly mottled . . . . . *campestris* Dyar and Knab
Smaller species; third vein dark-scaled . . . . . *dorsalis* Meigen

34. Mesonotum with central brown band, gray on the sides . . . . . *melanimon* Dyar
Mesonotum uniformly brown, or nearly so . . . . . *canadensis* Theobald
Mesonotum with sparse golden scales . . . . . *milleri* Dyar
Mesonotum pale, with broad dark median stripe . . . . . *atropalpus* Coquillett
Mesonotum pale yellowish with dark spots . . . . . *varipalpus* Coquillett
Mesonotum pale golden before, varied with brown behind . . . . . *fluviatilis* Lutz; *zoösophus* Dyar and Knab; *lithœcetor* Dyar and Knab
Mesonotum dark with curved silvery mark on each side . . . . *perichares* Dyar

35. Proboscis of the female white-ringed 36
Proboscis of the female without white ring 39

36. Abdomen with a longitudinal pale dorsal stripe 37
Abdomen without a dorsal stripe . . . . . *tæniorhynchus* Wiedemann

37. Wing-scales wholly dark . . . . . *mitchellæ* Dyar
Wing-scales dark and light mixed 38

38. Abdomen with side-spots and dorsal stripe concolorous . . . . *nigromaculis* Ludlow
Abdomen with white lateral spots, not concolorous with dorsal stripe, *sollicitans* Walker

39. Mesonotum dark with silvery markings 40
Mesonotum yellowish in integument, with or without silvery lines 41
Mesonotum normal and without silvery markings 42

40. Mesonotum with silvery markings lyre-shaped . . . . . *ægypti* Linnæus
Mesonotum broadly silvery in front, lined behind . . . . . *alleni* Turner

41. Mesonotum entirely yellowish . . . . . *knabi* Coquillett
Mesonotum with three central narrow silvery lines . . . . *mediovittatus* Coquillett

42. Tarsal pale rings broad, especially on hind-legs 43
Tarsal pale rings narrow; mesonotum uniformly brown 48

43. Wing-scales broad, inflated 44
Wing-scales narrow, normal 45

44. From the Atlantic coast of United States . . . . . *grossbecki* Dyar and Knab
From the Pacific coast . . . . . *squamiger* Coquillett

45. Large yellowish species; abdomen without transverse bands . . *flavescens* Müller
Abdominal pale markings transverse 46

46. North American species, Canadian fauna and adjacent 47
South American species, from Chile; abdomen with dorsal white line, *colonarius* Dyar

47. Large, resembling *vexans,* abdomen irrorated with yellowish scales, *riparius* Dyar and Knab
Large, mesonotum distinctly red . . . . . *aloponotum* Dyar
Large, without the red tint; mesonotum usually not whitish on the sides, the wing-scales dark . . . . . *excrucians* Walker
Similar, a little smaller; habitat western, not northern . . . . . *increpitus* Dyar
Similar; habitat northern river valleys, varieties southward on the Atlantic coast . . . . . *stimulans* Walker
Mesonotum often whitish on the sides; wings often with scattered white scales . . . . . *fitchii* Felt and Young

48. Terminal abdominal segments with normal pale bands . . . . . *vexans* Meigen
Terminal abdominal segments largely pale-scaled . . . . . *cantator* Coquillett

49. Mesonotum, male and female, with dark central band, sides silvered, *podographicus* Dyar and Knab
Female with dark band, male silvered across . . . . . *terrens* Walker
Both sexes with the mesonotum silvered across anteriorly 50

50. From Central America and Panama . . . . . *thorntoni* Dyar and Knab
From Dutch Guiana (♂ only known) . . . *argyrothorax* Bonne-Wepster and Bonne

51. Mesonotum entirely fulvous, no lines . . . . . *fulvithorax* Lutz
Mesonotum with golden or silvery lines 52

52. Four lines reaching anterior margin of scutellum, paired 53
Three lines reaching scutellum, the median one unpaired 58

53. Lines distinct 54
Lines confused and shaded with gold . . . . *arborealis* Bonne-Wepster and Bonne

54. Four lines reaching the anterior margin of mesonotum, supplemented by side-lines 55
Only the two central lines distinctly reaching anterior margin 56

55. Lines yellowish silvery . . . . . *sexlineatus* Theobald
Lines golden . . . . . *quadrivittatus* Coquillett
56. A silver patch on shoulder 57
Without this marking . . . . . *dominicii* Rangel and Romera Sierra
57. Lateral area of mesonotum with a broad silver band, *argyrites* Dyar and Núñez Tovar
Lateral area with several silver spots . . . . . *whitmorei* Dunn
58. Central line running the length of mesonotum . . . *septemstriatus* Dyar and Knab
Central line only posteriorly 59
59. Posterior central line silver 60
Posterior central line golden 61
60. Tips of hind tarsi dark . . . . . *albonotatus* Coquillett
Tips of hind tarsi white . . . . . *ioliota* Dyar and Knab
61. Anterior lateral line silver 62
Anterior lateral line golden . . . . . *aurites* Theobald
62. Anterior lateral line narrow . . . . . *busckii* Coquillett
This line broad . . . . . *walkeri* Theobald

MALE HYPOPYGIUM

1. Claspette present 2
Claspette absent 4
2. Claspette developed, a filament from columnar stem 3
Claspette a seta from a conical base *(Howardina)* 52
3. Side-piece with apical and basal lobes or modified scales 6
Side-piece with basal lobe, no apical one *(Tæniorhynchus)* 42
Side-piece without lobes *(Finlaya)* 48
4. A hairy or spinose angle at base of side-piece 5
Without this structure; basal membrane expanded or modified *(Stegomyia)*, *ægypti* Linnæus
5. Lobe at base of side-piece complex; clasper modified, furcate and with a basal branch *(Aëdes)* . . . . . *cinerus* Meigen
This lobe simple; clasper without basal branch, but tip more or less modified *(Aëdimorphus)* . . . . . *vexans* Meigen
6. Side-piece with large scales within as in *Hæmogogus (Conopogtegus)*, *leucocelænus* Dyar and Shannon
Side-pieces without large scales *(Ochlerotatus)* 7
7. Basal lobes modified, obsolete as such, but leaving a large spine on one side and two approximate setæ on the other, the latter sometimes obsolete, (group *aurifer*) 8
Basal lobes more or less well developed 11
8. Basal lobe large with two stout spines 9
Spines representing basal lobe not elevated 10
Spines and lobe absent . . . . . *aurifer* Coquillett
9. A slight hairy area beyond apical lobe . . . . . *intrudens* Dyar
A strong hairy area within apical lobe . . . . . *diantæus* Howard, Dyar, and Knab
10. Stem of claspette thickened and bent, hirsute at the angle . . . *pullatus* Coquillett
Stem of claspette slender and uniform . . . . . *muelleri* Dyar
11. Basal lobe elongate, semi-detached, the spine separate from the setiferous part (group *fulvus*) 12
Basal lobe sessile, or if semi-detached, the spine not apart from the setæ, or wanting 20
12. Basal lobe of side-piece rounded and bulbous 13
Basal lobe of side-piece elongated, finger-shaped 18

13. Filament of claspette broadly blade-shaped . . . . . *fulvus* Wiedemann
Filament of claspette not so formed 14

14. Filament of claspette with retrose point . . . . . *hastatus* Dyar
Filament of claspette elliptical, projecting at the base and lined 15
Filament of claspette slender 16

15. Stem of claspette stout, with a branch . . . . . *hortator* Dyar and Knab
Stem of claspette long and slender . . . . . *nubilus* Theobald

16. Stem of claspette short, the filament longer than it . . . . . *dupreei* Coquillett
Stem of claspette longer than the filament 17

17. Stem much longer than the filament; apical lobe large and prominent, *serratus* Theobald
Stem not much longer than filament; apical lobe small and delicate, *eucephalæus* Dyar

18. Basal lobe enlarged at base, the tip slender 19
Basal lobe slenderly finger-shaped throughout . . . . . *oligopistus* Dyar

19. Stem of claspette thick, sinuous . . . . . *atlanticus* Dyar and Knab
Stem of claspette slender, less sinuous . . . . . *tormentor* Dyar and Knab

20. Basal lobe more or less expanded and tubercular, with or without a spine . . 21
Basal lobe uniformly long-haired, no spine (group *trichurus*) 41

21. Basal lobe expanded, with many setæ, but without a single differentiated spine; if the marginal spines are thickened, more than one is involved, (group *dorsalis*) 22
Basal lobe with a single differentiated spine, or if absent, the lobe is flat and rugose 24

22. Basal lobe without spines on the margin . . . . . *canadensis* Theobald
Basal lobe with two spine-like setæ on the margin 23

23. Basal lobe with coarse spine-like setæ on the margin . . *campestris* Dyar and Knab
Basal lobe with two differentiated setæ . . . . . *melanimon* Dyar
These two setæ modified short spines . . . . . *dorsalis* Meigen

24. Apical lobe with short flat clinging setæ (group *punctor*) 25
Apical lobe with the setæ normal or slightly thickened 29

25. Spine of basal lobe greatly thickened but delicate . . . { *spencerii* Theobald; *idahoensis* Theobald; *hirsuteron* Theobald; *aldrichi* Dyar and Knab
Spine of basal lobe a normal spine, though enlarged 26

26. Claspette stem long and slender, the filament ribband-shaped, *implacabilis* Walker
Claspette stem rather stout, filament thick, curved 27

27. Setæ of basal lobe blade-like . . . . . *ventrovittis* Dyar
Setæ of basal lobe normal 28

28. Marginal spine strong . . . . . { *punctodes* Dyar; *punctor* Kirby; *cyclocerculus* Dyar; *leuconotips* Dyar; *aboriginis* Dyar; *hexodontus* Dyar
Marginal spine weakly differentiated . . . . . { *albifasciatus* Macquart; *colonarius* Dyar

29. Setæ on apical lobe practically absent, reduced; filament of claspette with retrose spine (group *scapularis*) 30
Setæ on apical lobe more or less developed; filament of claspette without retrose spine 33

30. Basal lobe of side-piece slight but with a stout spine 31
Basal lobe of side-piece elevated and expanded, the spine moderate, *thelcter* Dyar
Basal lobe elevated, with a very thick spine . . . . *iguazu* Shannon and Del Ponte

31. Tip of claspette expanded, cup-shaped . . . . . { *angustivittatus* Dyar and Knab / *crinifer* Theobald
    Tip of claspette not expanded 32
32. Filament of claspette little expanded, retrose tooth slight, { *scapularis* Rondani / *euplocamus* Dyar and Knab
    Filament of claspette expanded, retrose tooth distinct or multiple, { *infirmatus* Dyar and Knab / *condolescens* Dyar and Knab / *trivittatus* Coquillett / *lynchii* Brèthes / *tortilis* Theobald
33. Spine on basal lobe weakly differentiated, followed by setæ nearly as strong as it; setæ on apical lobe short and few 34
    Spine on basal lobe differentiated, adjacent setæ weaker 35
34. Mesosome a pair of incurved teeth with circular aperture (group *punctor*), *alpinus* Linnæus
    Mesosome normal, inconspicuous (group *communis*) . . . . . *nearcitus* Dyar
35. Setæ on apical lobe of side-piece more or less distinctly outwardly directed when the lobe is retracted, tending to obsolescence (group *communis*) . . . 36
    Setæ on apical lobe inwardly directed, often developed, seldom obsolescent, (group *flavescens*) 37
36. Apical lobe of side-piece nearly bare . . . . . { *niphadopsis* Dyar and Knab / *cataphylla* Dyar / *pacificensis* Hearle / *impiger* Walker
    Apical lobe of side-piece distinctly setose . . . . . { *communis* DeGeer / *prolixus* Dyar / *pionips* Dyar
37. Basal lobe of side-piece without a spine or tuft of setæ flat; apical lobe with short normal setæ 38
    Basal lobe with a strong distinct spine, free, accompanied by a few setæ; lobe flat; apical lobe with normal setæ 39
    Spine of basal lobe strong or weak, accompanied by many setæ; basal lobe conical; apical lobe with short, slightly thickened, somewhat curved setæ . . 40
38. Rugose setose area of basal lobe reaching up to apical lobe . . { *excrucians* Walker / *aloponotum* Dyar
    This area not reaching beyond middle of side-piece . . . . . *increpitus* Dyar
39. Basal lobe rugose nearly to apical lobe; filament of claspette angularly expanded at basal third . . . . . *flavescens* Mueller
    Basal lobe round, not longer than broad, rugose; filament of claspette expanded at middle . . . . . *stimulans* Walker
    Basal lobe a small setiferous area next to the spine; filament of claspette thick, angularly bent in middle . . . . . *cantator* Coquillett
40. Filament of claspette shortly and slenderly sickle-shaped, with more or less distinct basal notch . . . . . *fitchii* Felt and Young
    Filament of claspette with a broad expansion the whole length; basal lobe highly conical, with strong spine . . . . . *riparius* Dyar and Knab
    Filament of claspette short and smoothly widened; basal lobe moderate with a very strong spine . . . . . *grossbecki* Dyar and Knab
    Filament of claspette long, angularly widened at middle; basal lobe moderate, with strong spine . . . . . *squamiger* Coquillett
41. Apical lobe with short curved clinging setæ . . . . . *thibaulti* Dyar and Knab
    Apical lobe with normal setæ . . . . . *trichurus* Dyar

42. Filament of claspette with central retrose spine . . . . *tæniorhynchus* Wiedemann
Filament of claspette without such a spine 43

43. Side-piece short; basal lobe with a secondary area of short setæ beside it, *varipalpus* Coquillett
Side-piece moderate; basal lobe small, unmodified 44

44. Claspette short, the filament longer than it 45
Claspette longer, the filament shorter . . . . . *nigromaculis* Ludlow
Claspette distinctly long, the filament much shorter . . . . *atropalpus* Coquillett

45. Filament much longer than claspette stem 46
Filament slightly longer than claspette stem 47

46. Filament of claspette broad . . . . . *fluviatilis* Lutz
Filament of claspette filiform . . . . . *lithœcetor* Dyar and Knab

47. A long seta from tip of stem of claspette . . . . . *perichares* Dyar
A minute seta in this position . . . . . { *sollicitans* Walker / *mitchellæ* Dyar

48. An articulated spine at base of side-piece . . . . . *mediovittatus* Coquillett
Without this structure 49

49. A hair-tuft at middle of side-piece . . . . . *triseriatus* Say
Without this structure 50

50. Filament of claspette widened and ribbed, *argyrothorax* Bonne-Wepster and Bonne
Filament of claspette filiform 51

51. Filament of claspette twice as long as the stem . . . . { *thorntoni* Dyar and Knab / *alleni* Turner
Filament of claspette less than twice as long as stem, { *terrens* Walker / *podographicus* Dyar and Knab

52. A distinct mesosome between the tenth sternites . . *septemstriatus* Dyar and Knab
Without distiuct mesosome 53

53. Ninth tergites rudimentary . . . . . *walkeri* Theobald
Ninth tergites developed 54

54. Seta of claspette as long as its conical base 55
This seta twice as long as its base . . . { *arborealis* Bonne-Wepster and Bonne / *fulvithorax* Lutz

55. Clasper slender, longer than side-piece . . . . . *albonotatus* Coquillett
Clasper stouter, shorter than the side-piece . . . . . { *busckii* Coquillett / *aurites* Theobald / *quadrivittatus* Coquillett

The following species are unknown in the male: *Flavipes, annuliferus, annuliventris, obturbator, gonimus, pearyi, cacothius, euiris, labradoriensis, milleri, zoösophus, knabi, ioliota, argyrites, whitmorei, dominicii,* and *sexlineata.*

LARVA

1. Anal segment ringed by the plate 2
Plate chitinization interrupted on ventral line more or less broadly 21

2. Pecten of the air-tube with detached teeth outwardly 3
Pecten of the air-tube with evenly spaced teeth 6

3. Tuft of air-tube within the pecten 4
Tuft of air-tube beyond the pecten . . . . . *nigromaculis* Ludlow

4. Air-tube short, less than three times as long as wide 5
Air-tube moderate, about three times as long as wide . . . . . *alpinus* Linnæus

5. Lateral comb-scales of the eighth segment feathered . . . . . *fulvus* Wiedemann
Comb-scales sharply pointed . . . . . *thelcter* Dyar

6. Air-tube moderate, about three times as long as wide 7
Air-tube short, less than three times as long as wide 10

7. Anal gills extremely long and tracheate . . . . . { *dupreei* Coquillett / *hastatus* Dyar / *eucephalæus* Dyar }
Anal gills moderate to short 8

8. Lateral comb-scales in a patch of about twenty . . . . . *mitchellæ* Dyar
Lateral comb-scales six to twelve, rarely more 9

9. Anal hairs two long ones on each side . . . . . *implacabilis* Walker
Anal hairs a tuft and long hair on each side . . . . . { *punctor* Kirby / *punctodes* Dyar / *cyclocerculus* Dyar / *leuconotips* Dyar / *hexodontus* Dyar }

10. Air-tube with the hair-tuft within the pecten 11
Tuft of air-tube beyond the pecten 13

11. Lateral comb of the eighth segment of few scales 12
Lateral comb of many scales in a triangular patch . . . . . *tortilis* Theobald

12. Pecten of the air-tube reaching to three-fourths, well beyond the tuft, *tormentor* Dyar and Knab
Pecten reaching over half, the tuft only just within it . . . . . *nubilus* Theobald

13. Comb of the eighth segment of few scales 14
Comb of many scales in a triangular patch 15

14. Comb of about six scales . . . . . *atlanticus* Dyar and Knab
Comb of ten or more scales . . . . . *serratus* Theobald

15. Comb-scales with feathered tips 16
Comb-scales pointed at tip, thorn-shaped 18

16. Anal segment normal, the gills moderate 17
Anal segment short, the gills short, bud-like . . . . . *tæniorhynchus* Wiedemann

17. Skin of body distinctly pilose . . . . . *scapularis* Rondani
Skin smooth or minutely spiculate . . . . . *euplocamus* Dyar and Knab

18. Air-tube with three pairs of stout dorsal tufts . . . . . *crinifer* Theobald
Air-tube without dorsal hairs 19

19. Lateral hairs on abdominal segments three to five double . . *sollicitans* Walker
Lateral hairs on these segments single 20

20. Skin of body finely pilose . . . . . *angustivittatus* Dyar and Knab
Skin of body glabrous . . . . . { *infirmatus* Dyar and Knab / *trivittatus* Coquillett / *lynchii* Brèthes }

21. Brush of anal segment with a more or less developed angular chitinous plate 47
Without this structure 22

22. Air-tube with the tuft within the pecten 23
Air-tube with the tuft beyond the pecten 24

23. Air-tube with several dorsal tufts . . . . . *trichurus* Dyar
Air-tube without dorsal tufts . . . . . { *atropalpus* Coquillett / *cataphylla* Dyar }

24. Pecten of the air-tube with detached teeth outwardly 25
Pecten of the air-tube with evenly spaced teeth 33

25. Air-tube elongate; comb a patch of scales three rows deep 26
Air-tube less elongate, about three times as long as wide 27

26. Lateral abdominal hairs double . . . . . *flavescens* Müller
Lateral abdominal hairs single . . . . . { *excrucians* Walker / *aloponotum* Dyar }

27. Antennæ large, enlarged basally; tuft rather beyond the middle . *aurifer* Coquillett
Antennæ long, slender; tuft at the middle . . *diantæus* Howard, Dyar, and Knab
Antennæ moderate only; tuft before the middle 28

28. Dorsal head-hairs single; comb of few large scales 29
Head-hairs double or multiple; comb-scales numerous 31

29. Comb-scales about six . . . . . *ventrovittis* Dyar
Comb-scales nine to fourteen 30

30. Skin spicular-pilose; comb of fourteen scales . . . . . { *albifasciatus* Macquart / *idahoensis* Theobald

Skin glabrous; comb of nine scales . . . . . *spencerii* Theobald

31. Lateral abdominal hairs double on third to fifth segments . . . *vexans* Meigen
Lateral abdominal hairs single beyond second segment 32

32. Air-tube stout; comb of few scales . . . . . { *riparius* Dyar and Knab / *intrudens* Dyar

Tube more slender; comb a patch of many scales . . . . . *cinereus* Meigen

33. Comb of the eighth segment of few scales 34
Comb of ten to many scales in a patch 35

34. Comb-scales sole-shaped, with spinulæ . . . . . *ægypti* Linnæus

Comb-scales smooth or nearly so, bluntly rounded . . . . . { *triseriatus* Say / *alleni* Turner

35. Spines of the comb of eighth segment with central point 36
These spines evenly fringed with spinules at tip 41

36. Air-tube elongate, four times as long as wide . . . . . *fitchii* Felt and Young
Air-tube less elongate, three times as long as wide or less 37

37. Lower head-hair in three or more 40
Lower head-hair single or double 38

38. Lateral spinules of the comb-scales as long as apical one,
grossbecki Dyar and Knab
These spinules shorter than the apical spine 39

39. Upper head-hair double or triple . . . . . { *hirsuteron* Theobald / *aldrichi* Dyar and Knab / *stimulans* Walker

Both head-hairs single . . . . . { *impiger* Walker / *niphadopsis* Dyar and Knab / *nearcticus* Dyar

40. Anal gills very short . . . . . *cantator* Coquillett

Anal gills moderate to long . . . . . { *canadensis* Theobald / *pullatus* Coquillett / *thibaulti* Dyar and Knab / *hortator* Dyar and Knab

41. Antennæ spinulated 42
Antennæ smooth 46

42. Lower head-hair single 43
Lower head-hair in two or more 45

43. Anal gills large and sac-like, spotted . . . . . *varipalpus* Coquillett
Anal gills moderate, tapered 44

44. Upper head-hair in three . . . . . *campestris* Dyar and Knab

Both head-hairs single . . . . . { *dorsalis* Meigen / *melanimon* Dyar / *communis* DeGeer / *increpitus* Dyar

45 Lower head-hair in five . . . . . *pionips* Dyar

Lower head-hair in two or three . . . . . { *aborigins* Dyar; *fluviatilis* Lutz; *lithœcetor* Dyar and Knab; *squamiger* Coquillett

46. Pecten of tube followed by a single hair . . . . . *knabi* Coquillett

Pecten followed by a hair-tuft . . . . . { *terrens* Walker; *thorntoni* Dyar and Knab; *podographicus* Dyar and Knab

47. Air-tube with the tuft within the pecten 48
Air-tube with the tuft beyond the pecten 49

48. Comb-scales in a straight row; air-tube pecten running to apex, *walkeri* Theobald
Comb a patch of scales . . . . . *busckii* Coquillett

49. Comb-scales few in a single row 50
Comb-scales more numerous, in a patch 52

50. Air-tube over four times as long as wide . . . . . *aurites* Theobald
Air-tube three times as long as wide or less 51

51. Air-tube pecten dense, strongly spiral . . . . . *mediovittatus* Coquillett
Air-tube pecten normal, nearly straight . . . . . *albonotatus* Coquillett

52. Air-tube pecten gradually longer outwardly . . . . . *fulvithorax* Lutz
Pecten markedly longer, last tooth long . . . *arborealis* Bonne-Wepster and Bonne

The following species are unknown in the larva: *Condolescens, iguazu, leucocelænus, oligopistus, prolixus, muelleri, zoösophus, pacificensis, perichares, flavipes, annuliferus, annuliventris, obturbator, gonimus, pearyi, cacothius, euris, labradoriensis, milleri, colonarius, quadrivittatus, septemstriatus, ioliota, argyrothorax, sexlineatus, whitmorei, argyrites,* and *dominicii.*

Subgenus CONOPOSTEGUS Dyar

AËDES (CONOPOSTEGUS) LEUCOCELÆNUS Dyar and Shannon

HÆMOGOGUS LEUCOMELAS Lutz (not Meigen), in Bourroul Mosq. do Bras., 66, 1904.
Stegoconops leucomelas Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 216, 1911.
Aëdes (Gualteria) leucomelas Dyar, Ins. Ins. Mens., vi, 73, 1918.
Hæmagogus (Stegoconops) leucomelas Dyar, Ins. Ins. Mens., x, 195, 1922.
AËDES LEUCOCELÆNUS Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 484, 1924.
Aëdes (Finlaya) leucomelas Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 421, 1925.
Aëdes (Conopostegus) leucocelænus Dyar, Ins. Ins. Mens., xiii, 143, 1925.

Female—Proboscis long, slender, blue-black. Occiput blue-black, a narrow silvery border behind the eyes, a stripe on vertex and a patch on side below. Prothoracic lobes with silvery scales. Mesonotum blue-black, a narrow straight median stripe of silvery scales; pleuræ and coxæ with silvery white scales in patches. Abdomen blue-black, the posterior segments with narrow, basal, segmental silvery white bands, forming large triangular spots laterally the whole length; venter blue-black, the tips of the segments narrowly white. Legs blue-black; mid and hind femora with a white spot beyond middle, joined to the ventral basal white area, tips of femora silvery white. Wing-scales narrow, all dark.

Male—Coloration as in the female. Palpi slender, nearly as long as the proboscis. Hypopygium (Plate XXXIII, Fig. 105): Side-piece stout, rather

sharply conical, with many large narrowly lanceolate scales within toward tip. A large area of fine setæ at base. Claspette with narrow sinuate stem; two stout setæ before tip; filament broadly sickle-shaped, lined. Clasper small, narrowed at tip, the spine long, blunt, nearly half as long as the clasper itself. Tenth sternites broad, smoothly rounded and thickened at tip. Ninth tergites undeveloped. Mesosome a broad plate, widening outwardly, excavate at tip.

Larva—Unknown.

Panama, Peru, Trinidad, Brazil, Argentina (Raco, Tucumán, February 13, 1927, R. C. Shannon).

The larvæ live in the water in tree-holes. The adult has many characters of *Hæmagogus,* but the pleural setæ are as in *Aëdes.*

Subgenus OCHLEROTATUS Lynch Arribálzaga

Group FULVUS

AËDES (OCHLEROTATUS) FULVUS (Wiedemann)

CULEX FULVUS Wiedemann, Auss. Zweifl. Ins., i, 548, 1828.
CULEX OCHRIPES Macquart, Dipt. Exot., Suppl. 4, i, 315, 1850
CULEX FLAVICOSTA Walker, Ins. Saund., 431, 1856.
CULEX BIMACULATUS Coquillett, Proc. U. S. Nat. Mus., xxv, 84, 1902.
Culex ochripes and *Chrysoconops fulvus* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 186 and 198, 1911.
Aëdes bimaculatus and *fulvus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 622 and 624, 1917.
Aëdes (Ochlerotatus) bimaculatus Dyar, Ins. Ins. Mens., vi, 78, 1918.
Aëdes bimaculatus Barret, Ins. Ins. Mens., vii, 63, 1919.
Aëdes (Heteronycha) fulvus and *bimaculatus* Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes fulvus Dyar, Ins. Ins. Mens., viii, 174, 1920.
Aëdes bimaculatus Sherman, Journ. E. Mitchell Sci. Soc., xxxvi, 91, 1920.
Aëdes (Heteronycha) bimaculatus Dyar, Proc. U. S. Nat. Mus., lxii, 48, 1922.
Aëdes (Ochlerotatus) fulvus Dyar, Ins. Ins. Mens., x, 158, 1922.
AËDES STIGMATICUS Edwards, Bull. Ent. Res., xiii, 78, 1922.
Aëdes (Ochlerotatus) fulvus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 394, 1925.
Aëdes fulvus Dyar, Ins. Ins. Mens., xiii, 29, 1925.
Aëdes (Ochlerotatus) fulvus Dyar, Ins. Ins. Mens., viii, 143, 1925.

Female—Proboscis moderate, palpi one-fourth as long as it, both orange-yellow with black tips. Integument generally orange-yellow; occiput and prothoracic lobes with small yellow scales. Mesonotum with the anterior half yellow, the posterior half dark, sometimes confined to two posterior patches, but the black may be more extensive; scales very fine, yellow on the yellow parts, dark or absent on the blackish areas; pleuræ and coxæ yellow, more or less black-spotted, the scales fine, concolorous, inconspicuous. Abdomen yellow in the integument, segments with apical triangular blackish patches. Legs yellow; tips of femora, tibiæ and all the tarsal joints narrowly black. Wings yellow along the costal edge, the costa and first vein yellow-scaled nearly to apex; other scales dusky, all narrow.

Male—Coloration as in the female. Hypopygium (Plate XXXII, Fig. 106): Side-piece long, slender, curved, rounded at tip, a large apical lobe, with only a few minute setæ, running as a ridge to base; basal lobe inflated-capitate with slender stem, minutely setose all over; a large, strong spine separated from it. Clasper long, narrowed at tip, a long terminal spine, about one-fifth as long as the clasper. Tenth sternites narrow, chitinized,

and club-shaped, rounded at tip. Ninth tergites short irregular projections with about eight short stiff setæ each. Mesosome a small basal cylinder with notched tip.

Larva (Plate XXXII, Fig. 106)—Head rounded, sides bulging. Antennæ small, slender, a tuft at the middle. Upper head-hair single, lower double, anteantennal tuft multiple. Lateral comb of the eighth segment about thirty scales in a triangular patch. Air-tube two and a half times as long as wide, the pecten reaching beyond the middle with detached tooth outwardly, much exceeding the large multiple tuft. Anal segment ringed by the plate, the ventral brush posterior. Dorsal tuft a long hair and large brush on each side. Anal gills longer than the segment, pointed.

North Carolina, Arkansas, Mississippi, Louisiana, Texas, Guatemala, Nicaragua, Panama, Ecuador, Venezuela, Surinam, Trinidad, Bolivia, Brazil.

The larvæ live in temporary rain-pools, generally muddy. The collectors in tropical America have uniformly missed this larva; but it has been taken twice in the United States. The adults fly by day in the jungle and attack readily.

AËDES (OCHLEROTATUS) FLAVIPES (Macquart)

CULEX FLAVIPES Macquart, Dipt. Exot., i, 39, 1838.
Psorophora or *Aëdes flavipes* Bonne, Ins. Ins. Mens., xii, 85, 1924.
Culex flavipes Dyar, Ins. Ins. Mens., xii, 128, 1924.

Female—"Fuscus; capite thoraceque, squamis auratis; alis flavicantibus, squamis flavis. Long. 2-1/2 lin.

"Trompe brunâre. Abdomen janne (prive d'écailles), pieds d'un favue pâle.

"Du Chili (Conception), rapporté par M. Durville, Muséum.

"Cet individu, presqu' entièrement privé de ses écailles, so rapproche du *C. pipiens.*"

This imperfect description of a single denuded specimen has been generally thought to refer to *Culex pipiens* or *Culex quinquefasciatus.* Dr. Bonne, however, examined the type in the Paris Museum and stated it to be a small *Aëdes* or *Psorophora.* As the fauna of Chile is practically unknown to modern students, I am assuming this to be an *Aëdes* allied to *fulvus.*

AËDES (OCHLEROTATUS) ANNULIFERUS (Blanchard)

CULEX ANNULIFERUS Blanchard, Gay's Hist. Chile, Zoo., vii, 332, 1852.
Culex annuliferus Philippi, Verh. z.-b. Ges. Wien, xv, 595, 1865.
Culex annuliferus Theobald, Mon. Culic., v, 398, 1910.
Psorophora (?) annuliferus Dyar, Ins. Ins. Mens., xii, 129, 1924.

Female—"C. testaceo-fuscus; capite thoracique, aureo-squamulosis; alis flavescentibus, squamis flavis adspersis; pedibus testaceis femorum tibiarum tarsorumque articulorum omnius apice fuscis. Long. corp. 2 lin.

"Abdomen testace; segments noir-obscur au bord postérieur. Pattes annelées de noir a l'extrémité des articles. 4 mm. Chile."

This species has not been identified by modern writers. It would seem to be an *Aëdes* close to *fulvus,* and perhaps the same as *flavipes* preceding.

AËDES (OCHLEROTATUS) ANNULIVENTRIS (Blanchard)

ANOPHELES ANNULIVENTRIS Blanchard, Gay's Hist. Fis. y Pol. Chile, Zool., vii, 334, 1852.
Anopheles annuliventris Philippi, Verh. z-b. Ges. Wien, xv, 597, 1865.
Anopheles annuliventris Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 53, 1911.
Culex or *Aëdes annuliventris* Knab, Am. Journ. Trop. Dis. and Prev. Med., i, 37, 1913.
Psorophora (?) annuliventris Dyar, Ins. Ins. Mens., xii, 130, 1924.

Male—"A. fusca; antennis longe plumosis, testaceo cinereis; thorace fulvo fusco, alis infuscatis; pedibus fuscis, femoribus tarsorumque medio pallidis; abdomine fusco margine antico segmentorum albido. Long corp. 2 lin. (4 mm.)"

Chile (Valdivia).

Another of the unrecognized Chilean species, apparently an *Aëdes* with unringed tarsi.

AËDES (OCHLEROTATUS) HORTATOR Dyar and Knab

AËDES HORTATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 12, 1907.
Aëdes hortator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 843 1917.
Aëdes (?Gualteria) hortator Dyar, Ins. Ins. Mens., vi, 73, 1918.
Aëdes (Heteronycha) hortator Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) hortator Dyar, Ins. Ins. Mens., x, 160, 1922.
Aëdes hortator Bonne, Ins. Ins. Mens., xii, 170, 1924.
Aëdes (Ochlerotatus) hortator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 398, 1925.

Female—Proboscis moderate, blackish brown. Occiput and prothoracic lobes yellow in the integument, the former with brown scales. Thorax yellow in the integument; mesonotum with rather sparse dark brown scales; pleuræ and coxæ with a few setæ. Abdomen black above, with triangular basal segmental lateral silvery white spots, larger posteriorly; venter yellowish white. Legs black with violet reflection. Wing-scales narrow, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXIII, Fig. 107): Side-piece conical; apical lobe large, with numerous minute setæ; basal lobe expanded, with many small setæ; a large spine detached at its base. Claspette with stout stem, widening a little outwardly; filament large, roundedly expanded at base, ending in a point. Clasper slender, rather long, with long terminal spine over one-third as long as itself. Tenth sternites large, with pointed tip. Ninth tergites invisible in the mount.

Larva (Plate XXXIII, Fig. 107)—Head rounded. Antennæ slender, a long tuft at middle, two-thirds as long as head; head-hairs multiple, rather short, anteantennal tuft multiple. Lateral comb of the eighth segment of many small spines in a large triangular patch. Air-tube conical, three times as long as wide, pecten reaching the middle, followed closely by a large tuft. Anal segment with the plate reaching the ventral line, but rounded, not forming a ring; ventral brush with preceding tufts; dorsal tuft a long hair and brush on each side; lateral hair single. Anal gills long, the upper pair much longer than the lower.

Trinidad and Surinam.

The larvæ occur in temporary rain-pools.

AËDES (OCHLEROTATUS) NUBILUS (Theobald)

CULEX NUBILUS Theobald, Mon. Culic., iii, 208, 1903.
AËDES PERTINAX Grabham, Can. Ent., xxxviii, 316, 1906.
PROTOCULEX QUASISERRATUS Theobald, Mon. Culic., iv, 465, 1907.
Culex nubilus and *Protoculex quasiserratus* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 180 and 190, 1911.
Aëdes nubilus and *pertinax* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 721 and 791, 1917.
AËDES POLYAGRUS Dyar, Ins. Ins. Mens., vi, 77, 1918.
Aëdes (Ochlerotatus) nubilus Dyar, Ins. Ins. Mens., vi, 128, 1918.
Aëdes (Heteronycha) nubilus Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) nubilus Dyar, Ins. Ins. Mens., x, 161, 1922.
Aëdes (Ochlerotatus) nubilus and *pertinax* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 400 and 403, 1925.
Aëdes (Ochlerotatus) nubilus Dyar, Ins. Ins. Mens., xiii, 145, 1925.

Female—Proboscis moderate, dark brown. Occiput and prothoracic lobes with dark brown scales. Mesonotum dark brown; pleuræ and coxæ with pale setæ. Abdomen black above, with lateral basal segmental triangular white spots; venter whitish, a little stained with dark at the apices of the segments. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Mesonotum with a narrow straight median silvery line. Hypopygium (Plate XXXIV, Fig. 109): Side-piece conical; apical lobe narrow, projecting, nearly bare; basal lobe a rounded head with few setæ and a separated spine. Claspette with narrow stem, the filament large, roundedly expanded at base, lined, tapering to a curved point. Clasper large, narrow at base and tip, with long terminal spine, a quarter as long as itself. Tenth sternites rather large, thickened on one margin and at tip, which is pointed. Ninth tergites rounded, as long as broad, with about eight short, stiff setæ, irregularly inserted.

Larva—Head rounded, antennæ small, with a tuft at the middle. Head-hairs single, anteantennal tuft in five. Lateral comb of the eighth segment of about nine scales in a straight row. Air-tube short, twice as long as wide; pecten running to the middle, followed closely by a multiple tuft. Anal segment ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and brush on each side; lateral hair single. Anal gills three times as long as the segment, tapering and slender, the upper pair longer.

Bahamas, Antilles, Nicaragua, Panama, Colombia, the Guianas, Trinidad, Argentina (Misiones).

The larvæ occur in temporary ground-pools. Mr. R. C. Shannon has shown me specimens taken in the subtropical part of Argentina. Undoubtedly it occurs in Brazil also.

AËDES (OCHLEROTATUS) ATLANTICUS Dyar and Knab

AËDES ATLANTICUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 198, 1906.
Aëdes atlanticus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., xiv, 799, 1917.
Aëdes (Ochlerotatus) atlanticus Dyar, Ins. Ins. Mens., vi, 76, 1918.
Aëdes (Ochlerotatus) atlanticus Sherman, Journ. E. Mitchell Sci. Soc., xxxvi, 90, 1920.
Aëdes (Heteronycha) atlanticus Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) atlanticus Dyar, Ins. Ins. Mens., x, 164, 1922.
Aëdes (Heteronycha) atlanticus Dyar, Proc. U. S. Nat. Mus., lxii, 49, 1922.

Female—Proboscis moderate, dark brown. Occiput and prothoracic lobes with dark brown scales, the former with central silvery scales. Mesonotum dark brown, a median narrow, straight silvery line; pleuræ and coxæ with pale setæ. Abdomen black above, with lateral basal segmental triangular white spots; venter whitish, the segments narrowly dark at their tips. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXIII, Fig. 110): Side-piece long, narrow, rounded at tip; apical lobe narrow, projecting, with only a few small setæ; basal lobe roundedly expanded at base, the tip roundedly pointed, with small setæ all over; spine moderate, on a short inner branch. Claspette with very stout sinuate stem, expanded mesially; filament about the same diameter, lined, the tip sinuate, pointed. Clasper long, narrow at base and tip, curved at tip and with long terminal spine, one fourth as long as itself. Tenth sternites small, tips thickened and pointed. Ninth tergites small, with about five short spines.

Larva (Plate XXXIII, Fig. 110)—Head rounded, bulging at the sides; antennæ rather small with a tuft at the middle. Head-hairs single, the anteantennal tuft in six. Lateral comb of the eighth segment of six separate scales. Air-tube two and a half times as long as wide, pecten reaching the middle, closely followed by a multiple tuft. Anal segment ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and brush on each side. Anal gills about as long as the segment, the upper pair longer than the lower.

New Jersey, Maryland, Virginia, North Carolina, Louisiana.

The larvæ live in temporary rain-pools.

AËDES (OCHLEROTATUS) TORMENTOR Dyar and Knab

AËDES TORMENTOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 191, 1906.
Aëdes tormentor Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 797, 1917.
Aëdes tormentor Dyar, Ins. Ins. Mens., vi, 77, note, 1918.
Aëdes (Ochlerotatus) tormentor Dyar, Ins. Ins. Mens., vi, 77, 1918.
Aëdes (Heteronycha) tormentor Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) tormentor Dyar, Ins. Ins. Mens., x, 165, 1922.
Aëdes (Heteronycha) tormentor Dyar, Proc. U. S. Nat. Mus., lxii, 50, 1922.

Female—Proboscis moderate, dark brown. Occiput and prothoracic lobes with dark brown scales, the former with central silvery scales. Mesonotum dark brown, a median narrow straight silvery line; pleuræ and coxæ with pale setæ. Abdomen black above, with lateral basal segmental triangular white spots; venter whitish, the segments narrowly dark at their tips. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXIV, Fig. 111): Side-piece long, narrow, rounded at tip; apical lobe narrow, projecting, with only a few small setæ; basal lobe slender, finger-shaped, with few but rather long setæ only near the tip; spine near base of the lobe on a short stem. Claspette with long, slender, flexuous stem; filament short, rather stout, lined. Clasper long, narrowed at base and tip, with long terminal spine. Tenth sternites slender, chitinized and infuscated at tip, rounded. Ninth tergites small, longer than wide, with about five short coarse setæ irregularly distributed.

Larva (Plate XXXIV, Fig. 111)—Head rounded, bulging on the sides; head-hairs single, anteantennal tuft multiple. Antennæ rather long, spinu-

lated, a tuft at middle. Lateral comb of the eighth segment of about nine scales in a straight row. Air-tube about two and a half times as long as wide, the pecten reaching three-fourths the length of the tube, inclosing a small four-haired tuft. Anal segment ringed by the plate, the brush posterior; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills rather longer than the segment, tapered.

Florida, Alabama, Mississippi, Louisiana, Arkansas.

The larvæ live in temporary rain-pools.

AËDES (OCHLEROTATUS) SERRATUS (Theobald)

CULEX SERRATUS Theobald, Mon. Culic., ii, 45, 1901.
CULEX MATHISI Neveu-Lemaire, Arch. de Parisit., vi, 13, 1902.
Culex mathisi Theobald, Mon. Culic., iii, 220, 1903.
Culex mathisi Blanchard, Les. Moust., 370, 1905.
AËDES MERIDIONALIS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 195, 1906.
Culex mathisi Theobald, Mon. Culic., v, 362, 1910.
Protoculex serratus and *Culex mathisi* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 176 and 189, 1911.
Aëdes serratus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 794, 1917.
Aëdes (Heteronycha) serratus Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) mathisi and *serratus* Dyar, Ins. Ins. Mens., x, 159 and 163, 1922.
Aëdes (Ochlerotatus) serratus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 404, 1925.
Aëdes (Ochlerotatus) serratus Dyar, Ins. Ins. Mens., xiii, 144, 1925.

Female—Proboscis moderate, dark brown. Occiput and prothoracic lobes with dark brown scales, the former with central silvery scales. Mesonotum dark brown, a median narrow straight silvery line; pleuræ and coxæ with pale setæ. Abdomen black above, with lateral basal segmental triangular white spots; venter whitish, the segments narrowly dark at their tips. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXIV, Fig. 112): Side-piece long, narrow, rounded at tip; apical lobe narrow, projecting, with only a few small setæ; basal lobe broadly bulbous, densely and finely setose; spine on one side, slender, not differentiated from the setæ. Clasper long, slender, narrower at base and tip, with long terminal spine. Claspette with slender stem and short lined filament. Tenth sternites small, thickened at tip and rounded. Ninth tergites quadrate, with about eight stiff spines at tip, arranged in a transverse row.

Larva (Plate XXXIV, Fig. 112)—Head rounded, sides bulging; head-hairs single, anteantennal tuft multiple. Antennæ moderate, slender, sparsely spined. Lateral comb of the eighth segment of ten or twelve scales in a straight row. Air-tube two and a half times as long as wide, the pecten running to the middle, closely followed by a multiple tuft. Anal segment longer than wide, ringed by the plate, the ventral brush posterior. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills very long, tapered and pointed.

Mexico, Costa Rica, Panama, Colombia, Venezuela, the Guianas, Trinidad, Bolivia, and Brazil.

The larvæ occur in temporary rain-pools.

AËDES (OCHLEROTATUS) DUPREEI (Coquillett)

CULEX DUPREEI Coquillett, Can. Ent., xxxvi, 10, 1904.
Aëdes dupreei Howard, Dyar, and Knab, Mosq. of No. and Cent. Am. and W. I., iv, 779, 1917.
Aëdes (Ochlerotatus) dupreei Dyar, Ins. Ins. Mens., vi, 77, 1918.
Aëdes (Heteronycha) depreei Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Heteronycha) depreei Dyar, Proc. U. S. Nat. Mus., lxii, 49, 1922.
Aëdes (Ochlerotatus) dupreei Dyar, Ins. Ins. Mens., x, 162, 1922.
Aëdes (Ochlerotatus) dupreei Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 397, 1925.

Female—Proboscis moderate, dark brown. Occiput and prothoracic lobes with dark brown scales, the former with large area of silvery scales at vertex. Mesonotum dark brown, with broad median silvery line the whole length; pleuræ and coxæ with pale setæ. Abdomen black above with lateral basal segmental triangular white spots; venter whitish, the tips of the segments more or less blackish. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Head and mesonotum entirely silvery scaled. Hypopygium (Plate XXXIV, Fig. 113): Side-piece long and rather slender, rounded at tip; apical lobe conically projecting, bare; basal lobe broadly expanded, finely setose, the spine arising separately from its base. Claspette with slender stem and rather long slender filament. Clasper long, slender, narrowed at base and tip; with long terminal spine. Tenth sternites slender, the tips rounded and thickened. Ninth tergites small, with four or five short setæ. Mesosome a large cone.

Larva (Plate XXXIV, Fig. 113)—Head rounded, bulging at the sides; upper head-hair single, lower double, anteantennal tuft in three. Antennæ rather long, smooth, a single hair at the middle. Lateral comb of the eighth segment of about seven scales in a straight row. Air-tube rather long and slender, about five times as long as wide; pecten running out one-third, followed by a large tuft. Anal segment ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and six-haired brush on each side. Anal gills very long, over four times as long as the segment, tapered, conspicuously tracheate.

New Jersey, Louisiana, Arkansas. Probably will be found throughout the Atlantic and Gulf States when carefully looked for.

The larvæ occur in temporary rain-pools, but remain long at the bottom hiding among leaves and rubbish.

AËDES (OCHLEROTATUS) HASTATUS Dyar

Aëdes (Ochlerotatus) hastatus Dyar, Ins. Ins. Mens., x, 160, 1922.
Aëdes (Ochlerotatus) hastatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 403, 1925.
Aëdes (Ochlerotatus) hastatus Dyar, Ins. Ins. Mens., xiii, 145, 1925.

Female—Proboscis moderate, dark brown. Occiput and prothoracic lobes with dark brown scales, the former with large area of silvery scales at vertex. Mesonotum dark brown with broad median silvery line the whole length; pleuræ and coxæ with pale setæ. Abdomen black above with lateral basal segmental triangular white spots; venter whitish, the tips of the segments more or less blackish. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Head and mesonotum entirely silvery-scaled. Hypopygium (Plate XXXIII, Fig. 108): Side-piece conical, rather small; apical lobe narrow,

projecting, bearing a single rather stout hair at tip; basal lobe roundedly capitate, bearing rather few fine setæ; spine separately from the base, long and rather stout. Claspette with small slender stem and long filament, longer than the stem, bearing a sharp retrose point. Clasper long, slender, narrowed at base and tip, with long terminal spine. Tenth sternites rather broad, one margin and the tip thickened. Ninth tergites small, with four or five rather long setæ. Mesosome a broad cone, notched at tip.

Larva—Unknown, unless Knab's Costa Rican material belongs here. In any case very similar to that of *dupreei.*

Panama, and probably Costa Rica (unbred larvæ, determined by Knab as *dupreei.* See Monograph, iv, p. 781.)

The larvæ occur in temporary rain-pools, but specimens have not been preserved.*

AËDES (OCHLEROTATUS) OLIGOPISTUS Dyar

AËDES (OCHLEROTATUS) OLIGOPISTUS Dyar, Ins. Ins. Mens., vi, 76, 1918.
Aëdes (Heteronycha) oligopistus Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) oligopistus Dyar, Ins. Ins. Mens., x, 165, 1922.
Aëdes (Ochlerotatus) oligopistus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 397, 1925.

Female—Proboscis moderate, dark brown. Occiput and prothoracic lobes with dark brown scales, the former with large area of silvery scales at vertex. Mesonotum dark brown with broad median silvery line the whole length; pleuræ and coxæ with pale setæ. Abdomen black above, with lateral basal segmental triangular white spots; venter whitish, the tips of the segments more or less blackish. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Head and mesonotum entirely silvery scaled. Hypopygium (Plate XXXVI, Fig. 115): Side-piece narrow, long, rounded at tip; apical lobe narrow, projecting, with a single rather stout seta at tip and another smaller one subapically; basal lobe long, finger-shaped, reaching to the base of the outer lobe, finely setose throughout; spine separately at its base, long, stout. Clasper long, narrowed at base and tip, with long terminal spine. Claspette a long, slender stem, the terminal filament shorter than it, angularly expanded on one side. Tenth sternite small, thickened and rounded at tip. Ninth tergites slender, finger-shaped, with a few small terminal setæ. Mesosome a small cone.

Larva—Unknown.

Trinidad.

AËDES (OCHLEROTATUS) EUCEPHALÆUS Dyar

AËDES (OCHLEROTATUS) EUCEPHALÆUS Dyar, Ins. Ins. Mens., vi, 127, 1918.
Aëdes (Heteronycha) eucephalæus Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) eucephalæus Dyar, Ins. Ins. Mens., x, 163, 1922.
Aëdes eucephalæus Bonne, Ins. Ins. Mens., xii, 169, 1924.
Aëdes (Ochlerotatus) eucephalæus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 407, 1925.

Female—Proboscis moderate, dark brown. Occiput and prothoracic lobes with dark brown scales, the former with large area of silvery scales at vertex.

* As this is in press, Dr. D. P. Curry sends a larval skin from Panama, agreeing closely with the characters of *dupreei,* though the anal gills are broken off in the specimen.

Mesonotum dark brown with broad median silvery line the whole length; pleuræ and coxæ with pale setæ. Abdomen black above with lateral basal segmental triangular white spots; venter whitish, the tips of the segments more or less blackish. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Head and mesonotum entirely silvery scaled. Hypopygium (Plate XXXV, Fig. 114): Side-piece stout but rather small, rounded at tip; apical lobe narrow, projecting, with a single rather stout seta at tip and a smaller subapical one; basal lobe roundedly swollen capitate, with many short curved setæ; spine separate at the base, moderate. Clasper long, narrowed at base and tip, with long terminal spine. Claspette with narrow slender stem and short filament with rounded tip. Tenth sternites small, thickened and rounded at tip. Ninth tergites longer than wide with four or five short, stout terminal setæ. Mesosome a divided cone.

Larva (Plate XXXV, Fig. 114): Head rounded; antennæ rather long, slightly spinulated, with a small tuft at the middle; upper head-hair single, lower double, anteantennal tuft in three. Lateral comb of the eighth segment of about seven scales in a straight row. Air-tube four times as long as wide, the pecten running one-third, closely followed by a large tuft. Anal segment ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills very long, tapered, conspicuously tracheate.

Surinam.

The larvæ occur in temporary rain-pools.

Group SCAPULARIS

AËDES (OCHLEROTATUS) TRIVITTATUS (Coquillett)

CULEX TRIVITTATUS Coquillett, Journ. N. Y. Ent. Soc., x, 193, 1902.
CULEX INCONSPICUUS Grossbeck, Ent. News, xv, 333, 1904.
Aëdes trivittatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 773, 1917.
Aëdes trivittatus Dyar, Ins. Ins. Mens., v, 117, 1917.
Aëdes (Heteronycha) trivittatus Dyar, Proc. U. S. Nat. Mus., lxii, 51, 1922.
Aëdes (Ochlerotatus) trivittatus Dyar, Ins. Ins. Mens., x, 52, 1922.
Aëdes trivittatus Dyar, Ins. Ins. Mens., xii, 45, 1924.
Aëdes trivittatus Dyar, Ins. Ins. Mens., xii, 117, 1924.

Female—Proboscis rather long and slender, black. Occiput whitish-scaled with a spot of brown scales on the side. Prothoracic lobes with pale setæ. Mesonotum brown-scaled; a broad stripe on each side of whitish or pale yellow scales leaving only a narrow brown lateral margin; pleuræ and coxæ with whitish scales. Abdomen black above with narrow basal segmental bands of whitish scales, widening on the sides to large triangular spots, the bands themselves sometimes obsolete on posterior segments; venter whitish-scaled. Legs black with slight bronzy reflection. Wing-scales hair-like, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXV, Fig. 116): Side-piece elongate, slender, rounded at tip; apical lobe small, bare; basal lobe represented by a group of a dozen small setæ adjacent to a large strong spine, swollen on its basal part. Claspette with short uniform stem, the filament large, curved, swollen in the middle and with a single very small retrose spine. Clasper long, narrowed at base and tip with long terminal spine. Tenth sternites narrow, thickened on one margin and at tip with a curved point. Ninth tergites small, convex with four or five short stiff spines.

Larva (Plate XXXV, Fig. 116)—Head rounded, bulging at the sides; head-hairs single, anteantennal tuft multiple. Antennæ moderate, slender, a small tuft at the middle. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube two and a half times as long as wide, the pecten slightly exceeding the middle; followed by a hair-tuft. Anal segment ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and brush on each side. Anal gills long, tapered, pointed.

Maine, Massachusetts, Maryland, Virginia, West Virginia, Minnesota, Montana, Colorado, Louisiana, Texas, Missouri, New Mexico.

The larvæ live by preference in the flood-pools of rivers, also in rain-filled woods-pools.

AËDES (OCHLEROTATUS) OBTURBATOR Dyar and Knab

AËDES OBTURBATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 9, 1907.
Aëdes obturbator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 778, 1917.
Aëdes (Ochlerotatus) obturbator Dyar, Ins. Ins. Mens., x, 52, 1922.

Female—Proboscis rather long and slender, black. Occiput whitish-scaled with a spot of brown scales on the side. Prothoracic lobes with pale setæ. Mesonotum brown-scaled; a very broad stripe on each side of whitish or pale yellow scales, leaving only a narrow central brown line and slight brown lateral margin; pleuræ and coxæ with whitish scales. Abdomen black above with narrow basal segmental bands of whitish scales, widening on the sides to large triangular spots, the bands themselves sometimes obsolete on posterior segments; venter whitish-scaled. Legs black with slight bronzy reflection. Wing-scales hair-like, dark.

Male—Unknown.

Larva—Unknown.

Bahamas.

AËDES (OCHLEROTATUS) ANGUSTIVITTATUS Dyar and Knab

AËDES ANGUSTIVITTATUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 9, 1907.
AËDES CUNEATUS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 54, 1908.
AËDES ARGENTESCENS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 55, 1908.
Aëdes cuneatus and *angustivittatus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 770 and 776, 1917.
Aëdes trivittatus Evans (not Coquillett), Ann. Trop. Med. and Par., xv, 446, 1921.
Aëdes trivittatus cuneatus Dyar, Ins. Ins. Mens., x, 54, 1922.
Aëdes angustivittatus Dyar, Ins. Ins. Mens., xii, 117, 1924.
Aëdes trivittatus Bonne and Bonne-Wepster (in part not Coquillett), Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. 221, Afd. Trop. Hyg., No. 13, 392, 1925.
Aëdes (Ochlerotatus) angustivittatus Dyar, Ins. Ins. Mens., xiii, 144, 1925.
AËDES TRAVERSUS Dyar, Ins. Ins. Mens., xiii, 215, 1925.

Female—Proboscis rather long and slender, black. Occiput whitish-scaled with a spot of brown scales on the side. Prothoracic lobes with pale setæ. Mesonotum brown-scaled with a stripe of whitish to yellow scales on each side, sometimes very narrow, sometimes broad or even shaded across from one line to the other. Pleuræ and coxæ with whitish scales. Abdomen black above with narrow basal segmental bands of whitish scales, widening on the sides to large triangular spots, the bands themselves sometimes obsolete on posterior segments; venter whitish-scaled. Legs black with slight bronzy reflection. Wing-scales hair-like, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXV, Fig. 117): Side-piece rather long and narrow, rounded at tip; apical lobe roundedly protuberant, with only a few fine setæ, continued down the side half way to base, basal lobe represented by four or five, and several very small setæ adjacent to a long stout spine with swollen base. Claspette with long, slender stem roundedly swollen at tip; filament pointed, with a large notch on the side bearing about five retrose teeth. Clasper long, gently swollen except at base and tip, with long terminal spine. Tenth sternites moderate, thickened on one margin and at tip, with single terminal tooth. Ninth tergites small, wider than long, with three or four spines.

Larva (Plate XXXV, Fig. 117)—Head rounded, bulging at the sides; head-hairs single, anteantennal tuft multiple. Antennæ moderate, sparsely spined, a small tuft at the middle. Lateral comb of the eighth segment a patch of spines over two rows deep in places. Air-tube two and a half times as long as wide; pecten running to the middle, closely followed by a hair-tuft. Anal segment ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a brush on each side; lateral hair single, small. Anal gills moderate, pointed.

Mexico, Honduras, Salvador, Costa Rica, Guatemala, Panama, Colombia, Venezuela, Oxapampa, Peru Aug. 3 1927 Townsend.

The larvæ occur in temporary rain-pools.

AËDES (OCHLEROTATUS) CRINIFER (Theobald)

CULEX CRINIFER Theobald, Mon. Culic., iii, 209, 1903.
Culex crinifer Peryassú, Os Culic. do Braz., 187 and 350, fig. 84, 1908.
Culex crinifer Theobald, Mon. Culic., v, 361, 1910.
Culex crinifer Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 181, 1911.
Aëdes (Heteronycha) crinifer Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) crinifer Dyar, Ins. Ins. Mens., x, 57, 1922.
Aëdes (Ochlerotatus) crinifer Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 391, 1925.

Female—Proboscis rather long and slender, black. Occiput whitish-scaled with a brown area on the side. Prothoracic lobes with pale setæ. Mesonotum brown-scaled on the sides; a broad, even area of whitish silvery scales through the middle, corresponding to the area inclosed by the yellow lines of *angustivittatus*. Pleuræ and coxæ with whitish scales. Abdomen black above, with narrow segmental bands of whitish scales, widening on the sides to large triangular spots, the bands themselves sometimes obsolete on posterior segments; venter white-scaled. Legs black with slight bronzy reflection. Wing-scales hair-like, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXVI, Fig. 118): Side-piece rather long and narrow, rounded at tip; apical lobe roundedly protuberant, with only a few fine setæ, continued down the side halfway to base; basal lobe large, quadrate, projecting, with many small setæ from large tubercles; a large swollen spine adjacent. Claspette with slender stem roundedly swollen at tip; filament pointed, with a large notch on the side bearing about five retrose teeth. Clasper long, gently swollen except at base and tip, with long terminal spine. Tenth sternites moderate, thickened on one margin and at tip, with single terminal tooth, ninth tergites small, as wide as long, with four or five spines.

Larva (Plate XXXVI, Fig. 118)—Unknown, except by Peryassú's figure.

Brazil. Specimens before me from Venezuela agree in coloration, but I am not certain they may not be suffused examples of *angustivittatus*.

AËDES (OCHLEROTATUS) LYNCHII (Brèthes)

CULEX LYNCHII Brèthes, Ann. Mus. Nac. Hist. B. A., xxviii, 212, 1916.
CULEX TAPINOPS Brèthes, Physis, iii, 227, 1917.
Aëdes lynchii Dyar, Ins. Ins. Mens., vii, 87, 1919.
Aëdes (Ochlerotatus) lynchii, Dyar, Ins. Ins. Mens., vii, 87, 1919.
Aëdes (Heteronycha) dolosa Dyar (not Lynch), Ins. Ins. Mens., vii, 88, 1919.
Aëdes (Heteronycha) dolosa Dyar (not Lynch), Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Ochlerotatus) lynchii Dyar, Ins. Ins. Mens., ix, 149, 1921.

Female—Proboscis rather long and slender, black. Occiput with brown scales, a few golden scales at vertex. Prothoracic lobes with pale setæ. Mesonotum dark brown, with a broad median band of dull golden scales, which may be divided into three golden lines or diffused and faint; pleuræ and coxæ with white scales. Abdomen black above with narrow segmental bands of whitish scales, widening on the sides to large triangular spots, the bands themselves often more or less obsolete; venter whitish-scaled. Legs black with slight bronzy reflection. Wing-scales hair-like, dark.

Male—Coloration of the female. Hypopygium: Side-piece rather long and narrow, rounded at tip; apical lobe roundedly protuberant, with only a few fine setæ, continued down the side half-way to base; basal lobe quadrately protuberant, with many fine setæ from tubercles; a large swollen spine on the side. Claspette with long sinuate stem, not enlarged at tip; filament pointed, with a large notch on the side bearing about five retrose teeth. Clasper long, gently swollen except at base and tip, with long terminal spine. Tenth sternites moderate, slender, thickened and rounded at tip. Ninth tergites prominent, quadrate, with about six stiff setæ. Mesosome a conical cylinder with circular opening.

Larva—Head rounded, bulging on the sides. Head-hairs in threes, ante-antennal tuft multiple. Antennæ rather long, slender, sparsely spined, a tuft near the middle. Lateral comb of the eighth sagment of many spines in a triangular patch, single scale with central point and weak lateral spinules. Air-tube about twice as long as wide, the outer half strongly tapered; pecten running to the middle, closely followed by a hair-tuft. Dorsal tuft a long hair and brush on each side; lateral hair double, small. Anal gills longer than the segment, tapered.

Argentina.

AËDES (OCHLEROTATUS) CONDOLESCENS Dyar and Knab

AËDES CONDOLESCENS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 11, 1907.
Aëdes condolescens Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 789, 1917.
Aëdes condolescens Dyar, Ins. Ins. Mens., xii, 119, 1924.

Female—Proboscis moderate, slender, black. Occiput with silvery scales on the vertex, brown ones on the sides. Prothoracic lobes with pale setæ. Mesonotum with brown scales; a large patch of silvery scales in front, running back to the middle, leaving a narrow area of brown scales on each side and a few in front; pleuræ and coxæ with silvery white scales. Abdomen black above, with basal segmental white bands joining on the sides, tri-

angular basal segmental white spots; venter white-scaled. Legs dark brown. Wing-scales hair-like, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXVI, Fig. 119). Side-piece long, slender, rounded at tip; apical lobe rounded, projecting, nearly bare; basal lobe with four or five setæ and other minute ones adjacent to a large spine with swollen base. Claspette with short uniform stem, the filament large, angularly widened in the middle, and notched, with a large retrose point and one or more small ones. Clasper large, slightly swollen except at base and tip, with long terminal spine. Tenth sternites rather large, thickened on one margin and at tip, with single apical tooth. Ninth tergites quadrate with about five spines.

Larva—Unknown.

Bahamas and Cuba.

AËDES (OCHLEROTATUS) INFIRMATUS Dyar and Knab

AËDES INFIRMATUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 197, 1906.
Aëdes infirmatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 781, 1917.
Aëdes (Heteronycha) infirmatus Dyar, Proc. U. S. Nat. Mus., lxii, 50, 1922.
Aëdes infirmatus Dyar, Ins. Ins. Mens., xii, 199, 1924.

Female—Proboscis moderate, slender, black. Occiput with silvery scales on the vertex, brown ones on the sides. Prothoracic lobes with pale setæ. Mesonotum with brown scales; a large patch of silvery scales in front, running back to the middle, leaving a narrow area of brown scales on each side and a few in front; pleuræ and coxæ with silvery white scales. Abdomen black above, sides with triangular basal segmental white spots; venter white-scaled. Legs dark brown, tibia somewhat whitish beneath. Wing-scales hair-like, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXVI, Fig. 120): Side-piece long, slender, rounded at tip; apical lobe rounded, projecting, nearly bare; basal lobe with four or five setæ and other minute ones adjacent to a large spine with swollen base. Claspette with short uniform stem, the filament large, angularly widened in the middle, with a notch, large retrose point and one or more small ones. Clasper large, slightly swollen except at base and tip, with long terminal spine. Tenth sternites rather large, thickened on one margin and at tip, with single apical tooth. Ninth tergites quadrate, with about five spines.

Larva (Plate XXXVI, Fig. 120)—Head rounded, bulging at the sides; antennæ rather long, slender, sparsely spicular. Head-hairs single, ante-antennal tuft multiple. Lateral comb of the eighth segment of rather numerous scales in an irregular double row. Air-tube nearly three times as long as wide, the pecten running a little beyond the middle, followed by a hair-tuft. Anal segment rather longer than wide, ringed by the plate, the ventral brush posterior. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills longer than the segment, pointed.

North Carolina, Florida, Louisiana, Arkansas, Texas.

The larvæ live in temporary rain-pools.

AËDES (OCHLEROTATUS) EUPLOCAMUS Dyar and Knab

AËDES EUPLOCAMUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 190, 1906.
Aëdes euplocamus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 787, 1917.
AËDES (OCHLEROTATUS) CAMPOSANUS Dyar, Ins. Ins. Mens., vi, 128, 1918.
Aëdes euplocamus Dyar, Ins. Ins. Mens., xii, 118, 1924.
Aëdes camposanus Dyar, Ins. Ins. Mens., xiii, 29, 1925.

Female—Proboscis moderate, slender, black. Occiput with silvery scales on the vertex, brown ones on the sides. Prothoracic lobes with pale setæ. Mesonotum with brown scales; a large patch of silvery scales in front, running back to the middle, leaving a narrow area of brown scales on each side and a few in front; pleuræ and coxæ with silvery white scales. Abdomen black above, with a median whitish brown longitudinal band developed, showing most posteriorly; sides with triangular basal segmental white spots; venter white-scaled. Legs dark brown, tibiæ somewhat whitish beneath. Wing-scales hair-like, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXVII, Fig. 121): Side-piece long, slender, rounded at tip; apical lobe rounded, projecting, nearly bare; basal lobe with four or five setæ and other minute ones adjacent to a large spine with swollen base. Claspette with short uniform stem, the filament large, angularly widened in the middle, with a very small retrose point. Clasper large, slightly swollen except at base and tip, with long terminal spine. Tenth sternites rather large, thickened on one margin and at tip, with single apical tooth. Ninth tergites quadrate, with about five spines.

Larva (Plate XXXVII, Fig. 121)—Head rounded, bulging at the sides; antennæ rather long, slender, sparsely spicular. Head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of rather numerous scales in an irregular double row. Air-tube nearly three times as long as wide, the pecten running a little beyond the middle, followed by a hair-tuft. Anal segment rather longer than wide, ringed by the plate, the ventral brush posterior. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills longer than the segment, pointed.

Mexico, Costa Rica, Panama, Ecuador, Peru.

The larvæ do not occur in ordinary ground-pools, but in small collections of water, often saline, such as holes in rocks above tide-level.

AËDES (OCHLEROTATUS) SCAPULARIS (Rondani)

CULEX SCAPULARIS Rondani, Studi Ent. Baudi e Truqui, 109, 1848.
OCHLEROTATUS CONFIRMATUS Lynch Arribálzaga, Rev. Mus. de La Plata, ii, 146, 1891.
AËDES HEMISURUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 199, 1906.
AËDES INDOLESCENS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 11, 1907.
Leucomyia scapularis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 160, 1911.
Aëdes scapularis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 783, 1917.
Aëdes scapularis Dyar, Ins. Ins. Mens., vi, 128, 1918.
Culex scapularis (confirmatus) Lutz, Mem. Inst. O. Cruz, x, 86, 1919.
Aëdes scapularis Dyar, Ins. Ins. Mens., ix, 150, 1921.
Aëdes scapularis Dyar, Ins. Ins. Mens., x, 57-59, 1922.
Aëdes scapularis and *scapularis hemisurus* Dyar, Ins. Ins. Mens., xii, 118, 1924.
Aëdes (Ochlerotatus) scapularis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 388, 1925.

Female—Proboscis moderate, slender, black. Occiput with silvery scales on the vertex, brown ones on the sides. Prothoracic lobes with pale setæ. Mesonotum with brown scales; a large patch of silvery scales in front, running back to the middle, leaving a narrow area of brown scales on each side and a few in front; pleuræ and coxæ with silvery white scales. Abdomen black above, with a median whitish brown longitudinal band developed, showing most posteriorly; sides with triangular basal segmental white spots; venter white-scaled. Legs dark brown, tibiæ somewhat whitish beneath. Wing-scales hair-like, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXVII, Fig. 122): Side-piece long, slender, rounded at tip; apical lobe rounded, projecting, nearly bare; basal lobe with four or five setæ and other minute ones adjacent to a large spine with swollen base. Claspette with short uniform stem, the filament large, angularly widened in the middle, with a very small retrose point. Clasper large, slightly swollen except at base and tip, with long terminal spine. Tenth sternites rather large, thickened on one margin and at tip, with single apical tooth. Ninth tergites quadrate with about five spines.

Larva (Plate XXXVII, Fig. 122)—Head rounded, bulging at the sides; antennæ rather long, slender, sparsely spicular. Head-hairs single, ante-antennal tuft multiple. Lateral comb of the eighth segment of rather numerous scales in an irregular double row. Air-tube nearly three times as long as wide, the pecten running a little beyond the middle, followed by a hair-tuft. Anal segment rather longer than wide, ringed by the plate, the ventral brush posterior. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills longer than the segment, pointed.

Greater Antilles, Colombia, Venezuela, Trinidad, the Guianas, Bolivia, Brazil.

The larvæ occur in temporary rain-pools.

AËDES (OCHLEROTATUS) IGUAZU Shannon and Del Ponte

AËDES (OCHLEROTATUS) IGUAZU Shannon and Del Ponte, new species (here published).

"*Female*—Proboscis rather long and slender, black. Occiput with sparse narrow white scales. Mesonotum dull yellowish-scaled, with darker brown bands, paired median on the anterior three-fourths and posterior side-stripes; pleuræ and coxæ with silvery white scales. Abdomen black above, with lateral basal segmental silvery white patches; venter strongly banded, white at bases of the segments, black at tips. Legs black, the femora white at base. Wing-scales black.

"*Male*—Coloration of the female. Hypopygium: Side-piece long and slender; basal lobe prominent, expanded, with many setæ at tip and a very strong spine; apical lobe large, bare, except for one or two rudimentary setæ. Clasper large, slightly thickened in the middle, curved at tip and with a long inserted terminal spine. Claspette stem moderate, uniform, rather slender; filament nearly as long as it, ending in a point and with an expansion in the middle with sharp retrose point. Tenth sternites moderate, narrow, the tip thickened and hooked. Ninth tergites small, with two or three moderate stiff setæ."—Shannon and Del Ponte.

Larva—Unknown.

Argentina (Misiones).

Some of the types have been deposited in the U. S. National Museum by the courtesy of the Instituto Bacteriologico de Buenos Aires of the Argentine Government, through Mr. R. C. Shannon.

AËDES (OCHLEROTATUS) THELCTER Dyar

AËDES (TÆNIORHYNCHUS) THELCTER Dyar, Ins. Ins. Mens., vi, 129, 1918.
Aëdes (Heteronycha) thelcter Dyar, Proc. U. S. Nat. Mus., lxii, 52, 1922.
Aëdes (Ochlerotatus) thelcter Dyar, Ins. Ins. Mens., x, 60, 1922.
Aëdes thelcter Dyar, Ins. Ins. Mens., xii, 118, 1924.
Aëdes thelcter Dyar, Ins. Ins. Mens., xii, 132, 1924.

Female—Proboscis moderate, slender, black. Occiput with pale yellowish scales on the vertex, brown ones on the sides. Prothoracic lobes with pale setæ. Mesonotum with dense, coarse, light yellowish gray scales; pleuræ and coxæ with whitish scales. Abdomen black, with a series of basal segmental triangular white patches and similar lateral spots; venter whitish-scaled. Legs black, the femora, tibiæ and first tarsal joint whitish beneath. Wing-scales narrow, mostly pale, the costa, first, third, and fifth veins appearing blackish.

Male—Coloration as in the female. Hypopygium (Plate XXXVII, Fig. 123): Side-piece stout, conical; apical lobe broad, low, with three or four rather stout but short setæ; basal lobe quadrately expanded, tubercular, and finely setose, a moderate spine beside it. Claspette with rather short curved stem; filament rather long, pointed, with a slight retrose point centrally. Clasper large, swollen except at base and tip, with long terminal spine. Tenth sternites narrow, thickened at tip, with a single reversed tooth. Ninth tergites forming two narrow loops of chitin, on the inner margin of which are five spines. Mesosome conical.

Larva (Plate XXXVII, Fig. 123)—Head rounded, bulging on the sides; antennæ small, slender, with a hair at the middle. Head-hairs single. Comb of the eighth segment of about fifteen scales in a triangular patch, nearly three rows deep. Air-tube about two-and-a-half times as long as wide; pecten running out three-fourths of the tube, the terminal teeth rather weakly detached, tuft multiple, about the middle of the tube, well within the end of the pecten. Anal segment ringed by the plate, the ventral brush posterior. Dorsal tuft a long hair and brush on each side.

Rio Grande Valley, Texas, and presumably on the Mexican side also.

The larvæ occur in temporary ground-pools.

AËDES (OCHLEROTATUS) TORTILIS (Theobald)

CULEX TORTILIS Theobald, Entom., xxvi, 281, 1903.
AËDES AURATUS Grabham, Can. Ent., xxxviii, 313, 1906.
CULEX BRACTEATUS Coquillett, Proc. Ent. Soc. Wash., vii, 184, 1906.
AËDES HABANICUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 198, 1906.
AËDES BALTEATUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 9, 1907.
AËDES PLUTOCRATICUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 11, 1907.
Aëdes bracteatus, plutocraticus, tortilis, and *balteatus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 802, 804, 806 and 809, 1917.
AËDES TORTILIS VIRGINENSIS Dyar, Ins. Ins. Mens., x, 56, 1922.
Aëdes (Ochlerotatus) tortilis Dyar, Ins. Ins. Mens., x, 54, 1922.
Aëdes (Ochlerotatus) bracteatus, plutocraticus, tortilis, balteatus, and *virginensis* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 393 and 394, 1925.

Female—Proboscis moderate, slender, black. Occiput white-scaled on the vertex, brown on the side. Prothoracic lobes with pale hairs. Mesonotum

dark brown-scaled, with a broad median dull golden patch, not distinctly reaching the posterior edge, often broken up into three stripes or diffused. Pleuræ and coxæ with whitish scales. Abdomen black above, with basal segmental narrow white bands, obsolete at the sides, lateral triangular similar spots; venter whitish-scaled. Legs black. Wing-scales hair-like, dark.

Male—Coloration as in the female. Hypopygium (Plate XXXVIII, Fig. 124): Side-piece rather slender, conical; apical lobe triangularly expanded, bare except for minute setæ, running to middle of side-piece; basal lobe a group of fine parallel setæ resembling a scale, adjacent to a large spine swollen toward base. Claspette with moderate curved stem, filament large, notched on the side, with one large and several small retrose points. Clasper long, slightly swollen except at base and tip, with long terminal spine. Tenth sternites narrow, thickened on one margin and tip with a single tooth. Ninth tergites small, columnar, with three or four spines at tip. Mesosome conical.

Larva (Plate XXXVIII, Fig. 124)—Head rounded, bulging at the sides. Antennæ moderate, slender, sparsely spined, a small tuft at the middle. Head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a small triangular patch. Air-tube two and a half times as long as wide, pecten reaching a little beyond middle, followed by the hair-tuft. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a hair and brush on each side; lateral hair single; anal gills longer than the segment, tapered.

Bahamas, Virgin Islands, Greater Antilles.

The larvæ occur in temporary ground-pools.

AËDES (OCHLEROTATUS) MILLERI Dyar

AËDES MILLERI Dyar, Ins. Ins. Mens., x, 194, 1922.

Aëdes (Ochlerotatus) milleri Bonne and Bonne-Wepster, Mosq. of Surinam, Roy. Col. Inst. Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 392, 1925.

Female—Proboscis rather long, uniform, black. Occiput with dense white scales, a small black spot on each side and black bristles behind. Mesonotum black-scaled, with six very narrow and not wholly continuous lines of golden scales; pleuræ and coxæ with white scales. Abdomen black, with median dorsal triangular pale yellow patches; venter yellowish-scaled, with large black spots medianly toward bases of segments. Legs black; tips of femora, tibiæ, and all the tarsal joints at base and apex ringed with yellowish white. Wings strongly iridescent, the scales narrow, black.

Male—Coloration of the female, the golden mesonotal bands broader and diffused. Hypopygium with expanded basal lobe with spine and setæ; filament of claspette with retrose point.

Larva—To be described by Shannon and Del Ponte.

Colombia (Bogotá), Argentina (Salta and Córdoba).

A large species of wide alpine distribution. I have compared Shannon and Del Ponte's Argentine material and note no specific differences. Mr. R. C. Shannon kindly laid material of the species before me, but not in season to include descriptions of male hypopygium and larva here.

Group AURIFER

AËDES (OCHLEROTATUS) PULLATUS (Coquillett)

CULEX PULLATUS Coquillett, Proc. Ent. Soc. Wash., vi, 168, 1904.
Aëdes pullatus Dyar, Ins. Ins. Mens., vi, 33, 1919; v, 118, 1917.
AËDES ACROPHILUS Dyar, Ins. Ins. Mens., v, 127, 1917.
Aëdes pullatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 738, 1917.
CULEX JUGORUM Villeneuve, Bull. Soc. Ent. France, 1919, 59, 1919.
AËDES GALLII Martini, Arch f. Schiffs.-u, Trop. Hyg., xxiv, Beih, 1, 110, 1920.
Aëdes pullatus Dyar, Ins. Ins. Mens., viii, 11, 1920.
AËDES METALEPICUS Dyar, Ins. Ins. Mens., viii, 51, 1920.
Aëdes (Ochlerotatus) pullatus Edwards, Bull. Ent. Res., xii, 316, 1921.
Aëdes (Heteronycha) pullatus Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 90, 1921.
Aëdes (Heteronycha) pullatus Dyar, Proc. U. S. Nat. Mus., lxii, 53, 1922.
Aëdes pullatus Dyar, Ins. Ins. Mens., x, 68, 1922.
Aëdes pullatus Dyar, Ins. Ins. Mens., x, 86, 1922.
Aëdes pullatus Dyar, Ins. Ins. Mens., xi, 43, 1923.
Aëdes pullatus Dyar, Ins. Ins. Mens., xii, 44, 1924.

Female—Proboscis long, slender, black. Occiput with yellow pale scales, lighter on the sides. Prothoracic lobes with many pale setæ. Mesonotum with light brown scales, often shading to pale yellow around the margin, or entirely pale yellow; two black lines, which are narrow, impressed and unusually approximate; posterior side-lines, when showing, also very narrow, sharply bent in front; pleuræ and coxæ with whitish scales in patches. Abdomen black above, with basal segmental narrow white lines with lateral widenings; venter whitish-scaled, black spots mesially on posterior portions of the segments. Legs black. Wing-scales hair-like, dark.

Male—Coloration of the female. Hypopygium (Plate XXXVIII, Fig. 125): Side-piece long, uniform, rounded at tip; many long, coarse hairs on the inner margin; apical lobe prominent, running along the inner margin to middle, with a few small hairs before the tip, directed outward; basal lobe obsolete, but a large, strong spine remains, inwardly of which are two short curved spines connected by chitin. Claspette long, hirsute at base, roundedly angled and narrowed after basal third; filament with small base, widened and then tapered on one side, long, "sickle-shaped." Clasper moderate, narrowed at tip, with long terminal spine. Tenth sternites strongly narrowed outwardly and thickened, ending in two teeth. Ninth tergites short, bearing five or six spines.

Larva (Plate XXXVIII, Fig. 125)—Head rounded, bulging at the sides; antennæ moderate, sparsely spined, with a tuft at the middle. Head-hairs upper in eight, lower in four or thereabout, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a large triangular patch. Air-tube over three times as long as wide, the pecten reaching the basal third; a multiple hair-tuft about the middle. Anal segment with a dorsal plate reaching well down the sides, excavate on the margin; ventral brush posterior; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills nearly twice as long as the segment, pointed.

Rocky Mountains, Colorado to Alberta, British Columbia, Yukon Territory, Yukon Valley to Alaska; Alps of Europe.

The larvæ hatch from over-wintering eggs in the cold snow-pools in spring

in the mountains. The species ranges from sea-level to 10,000 feet, reaching as high altitudes as even the strictly alpine forms. The larvæ are slow in development, being found last in the pools after other mosquito inhabitants have transformed and flown.

AËDES (OCHLEROTATUS) MUELLERI Dyar

AËDES (HETERONYCHA) MUELLERI Dyar, Ins. Ins. Mens., viii, 81, 1920.
AËDES IRIDIPENNIS Dyar, Ins. Ins. Mens., x, 92, 1922.
AËDES (HETERONYCHA) IRIDIPENNIS Dyar, Proc. U. S. Nat. Mus., lxii, 1922.

Female—Proboscis long, slender, black. Occiput with yellowish white scales and a black patch on the side. Prothoracic lobes with some pale yellowish scales and pale bristles. Mesonotum with pale yellow, almost white scales; two broad dark brown bands running the whole length, though narrowed behind, and broad posterior side-stripes, reducing the yellow scales between them to narrow lines; pleuræ and coxæ with white scales. Abdomen black above with narrow basal segmental white bands, sometimes obsolete posteriorly, widening on the sides triangularly; venter white-scaled with broken median black stripes. Legs black, the tips of femora white. Wings with the membrane iridescent, the scales dark, the veins black.

Male—Coloration of the female. Hypopygium (Plate XXXIX, Fig. 126): Side-piece long, rounded at tip; apical lobe small, retracted in the mount before me; basal lobe represented by a stout spine close to basal margin; claspette moderate, curved, uniform, the filament slenderly sickle-shaped and as long or longer than the stem. Clasper distinctly swollen in the middle with a long terminal spine. Tenth sternites narrow, strongly thickened on one margin and tip, ending in a sharp point. Ninth tergites small, rounded, with four or five spines.

Larva—Unknown.

Arizona (Chiricahua Mountains, 6,100 feet), Mexico (above Mexico City).

A representative of *pullatus* in the mountains of the Mexican Plateau.

AËDES (OCHLEROTATUS) EUIRIS Dyar

AËDES EUIRIS Dyar, Ins. Ins. Mens., x, 193, 1922.
Aëdes (Ochlerotatus) euiris Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 394, 1925.

Female—Proboscis long, rather slender, black. Occiput with small pale golden scales and a black spot on each side. Prothoracic lobes with pale bristles. Mesonotum with dark brown scales intermixed with small pale golden ones forming an illy defined tessellated pattern of which the main part is a broad central anterior band of scattered golden scales; pleuræ and coxæ with white scales. Abdomen black above, with rather narrow basal segmental white bands widening triangularly on the sides; venter white-scaled with a median segmentarily broken black band. Legs black. Wings iridescent, the scales narrow, dark; veins black.

Male—Unknown.

Larva—Unknown.

Columbia (Bogotá).

Apparently an Andean representative of the *pullatus* type. Mountain mosquitoes of this type may exist extensively in the Andes, but no collections of them have as yet been made.

AËDES (OCHLEROTATUS) INTRUDENS Dyar

Aëdes impiger Howard, Dyar, and Knab (not Walker), Mosq. No. and Cent. Am. and W. I., iv, 755, 1917.
AËDES INTRUDENS Dyar, Ins. Ins. Mens., vii, 23, 1919.
Aëdes (Heteronycha) intrudens Dyar, Ins. Ins. Mens., viii, 11, 1920.
Aëdes (Ochlerotatus) intrudens Edwards, Bull. Ent. Res., xii, 316, 1921.
Aëdes (Heteronycha) intrudens Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 91, 1921.
Aëdes (Heteronycha) intrudens Dyar, Proc. U. S. Nat. Mus., lxii, 54, 1922.
Aëdes intrudens Dyar, Ins. Ins. Mens., x, 68, 1922.
Aëdes intrudens Dyar, Ins. Ins. Mens., x, 86, 1922.
Aëdes intrudens Dyar, Ins. Ins. Mens., xi, 43, 1923.
Aëdes intrudens Dyar, Ins. Ins. Mens., xii, 44, 1924.

Female—Proboscis moderate, slender, black. Occiput with brown scales. Prothoracic lobes with a few pale patches. Mesonotum entirely dark bronzy brown-scaled, with or without two narrow black lines that do not reach posterior margin; pleuræ and coxæ with white scales. Abdomen black, with basal segmental white bands; venter whitish-scaled, the segments more or less distinctly banded with black posteriorly. Legs blackish brown. Wing-scales narrow, the veins dark brown.

Male—Coloration of the female. Hypopygium (Plate XXXVIII, Fig. 127): Side-piece rather long, rounded at tip, a tuft of dense and somewhat flattened hairs from its apex; apical lobe rounded, reaching base when fully inflated, with a little chitinized cap at its tip which bears a number of small basally curved hairs; basal lobe represented on one side by a large spine swollen toward its base and on the other by two stout spines on a conical pedestal. Claspette with the stem stout on basal half, hirsute and with a stout seta on a projecting angle, outwardly slender; filament large, strongly widened centrally on one side, the outer side thickened. Clasper moderate, swollen on basal third, with long terminal spine. Tenth sternites narrow, the tip narrowed, thickened and pointed. Ninth tergites low, broad, approximate, each bearing about eight spines.

Larva (Plate XXXVIII, Fig. 127)—Head rounded, bulging at the sides. Antennæ rather long, narrowed outwardly, with mesial tuft. Upper head-hair in four, lower in three, anteantennal tuft multiple. Lateral comb of the eighth segment of few scales in a partly double row. Air-tube stout at base, nearly three times as long as wide; pecten running to the middle, the last two teeth widely detached, followed by a hair-tuft. Anal segment longer than wide, the dorsal plate reaching very near the ventral line, the ventral brush with tufts preceding the barred area; dorsal tuft a long hair and brush on each side. Anal gills as long as the segment, pointed.

Forested Canadian Zone from Atlantic to the Rockies, Rocky Mountains from Colorado to Alberta and British Columbia (Skeena River); a specimen was reported from Germany, but has not been found there lately.

The species has not been encountered in the Yukon Valley nor the mountains of California. The larvæ breed very early in cold snow-pools and wet meadows, the summer and following winter being passed in the egg state on the ground. The adults are fond of entering houses and can be found in such places until July, when there is no sign of adults out of doors. This is in contradistinction to the habits of other forest mosquitoes, which generally shun interiors.

AËDES (OCHLEROTATUS) DIANTÆUS Howard, Dyar, and Knab

AËDES DIANTÆUS Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 758, 1917.
Aëdes diantæus Dyar, Ins. Ins. Mens., vii, 20, 1919.
AËDES SERUS Martini, Arch. f. Schiffs.-u. Trop. Hyg., xxiv, Beih, 1, 96, 1920.
Aëdes diantæus Dyar, Ins. Ins. Mens., viii, 7, 1920.
Aëdes (Ochlerotatus) diantæus Edwards, Bull. Ent. Res., xii, 311, 1921.
Aëdes (Heteronycha) diantæus Dyar, Trans. Roy. Can. Inst., Toronto, xiii, 92, Pt. 1, 1921.
Aëdes (Heteronycha) diantæus Dyar, Proc. U. S. Nat. Mus., lxii, 54, 1922.
Aëdes diantæus Dyar, Ins. Ins. Mens., x, 68, 1922.
Aëdes diantæus Dyar, Ins. Ins. Mens., x, 85, 1922.
Aëdes diantæus Dyar, Ins. Ins. Mens., xi, 43, 1923.

Female—Proboscis long, uniform, black with bronzy reflection. Occiput with dull yellowish scales. Prothoracic lobes and mesonotum with similar grayish yellow scales; two rather broad dark brown bands running to posterior three-fourths. These bands are sometimes fused into a single band; pleuræ and coxæ with white scales. Abdomen black above, with narrow basal segmental white bands, widening at the sides, sometimes obsolete dorsally; venter grayish white with median triangular apical segmental black marks more or less developed. Legs black with slight bronzy and bluish reflection. Wing-scales narrow, dark.

Male—Coloration of the female. Hypopygium (Plate XXXIX, Fig. 128): Side-piece rather long, rounded at tip; apical lobe conical, projecting; a little chitinized cap on tip of lobe bearing fine setæ, a few coarse setæ also from base of lobe; a dense tuft of long, fine hairs from an area at base of lobe; basal lobe represented by a conical swelling with two strong spines at its summit, and by another very strong spine that arises at the base of the side-piece. Claspette thick on basal half, angled at the middle and with a seta there, the outer half more slender; filament with narrow stem, triangularly widened outwardly, with rounded outer edge. Clasper long, narrowed at base and tip, with long terminal spine. Tenth sternites broad, the tips much thickened and rounded. Ninth tergites quadrate, longer than wide, with about six short thick spines.

Larva (Plate XXXIX, Fig. 128)—Head rounded, bulging at the sides; head-hairs in threes; antennæ very long, longer than the head, but slender throughout and with a hair-tuft at the middle; terminal spines large. Lateral comb of the eighth segment of about eight to ten scales, each terminating in a point as long as the body of the scale. Air-tube two and a half times as long as wide, tapered outwardly; pecten reaching the middle, the last three teeth stout and detached, followed by a hair-tuft; anal segment as long as wide, the dorsal plate reaching the ventral line, almost touching centrally, not forming a ring; ventral brush with small tufts preceding. Dorsal tuft a long hair and brush on each side.

Canadian forested region from New Hampshire and Ontario to British Columbia; Rocky Mountains to Wyoming; Germany.

The species is rare and local, frequenting the darkest woods. The males do not swarm in the usual manner, but fly singly where the females are biting. Matings may readily be observed. The adults fly both by day and night in dark forest.

AËDES (OCHLEROTATUS) AURIFER (Coquillett)

CULEX AURIFER Coquillett, Can. Ent., xxxv, 255, 1903.
Aëdes aurifer Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 766, 1917.
Aëdes aurifer Dyar, Ins. Ins. Mens., vi, 39, 1919.
Aëdes (Heteronycha) aurifer Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 89, 1921.
Aëdes (Heteronycha) aurifer Dyar, Proc. U. S. Nat. Mus., lxii, 52, 1922.

Female—Proboscis rather long, uniform, black. Occiput with a narrow line of golden scales in the middle, dark brown on the sides, but with a lateral golden spot. Mesonotnum dark brown-scaled in the middle, the sides somewhat narrowly golden yellow, with some yellow scales about the antescutellar space; pleuræ and coxæ with white scales. Abdomen black, the segments scarcely paler at their bases, but with lateral triangular white patches; venter white-scaled with median segmentarily broken black band. Legs black with slight bronzy reflection. Wing-scales narrow, dark.

Male—Coloration of the female. Hypopygium (Plate XXXIX, Fig. 129): Side-piece rather long, rounded at tip; apical lobe rounded, large, with only a few small setæ; basal lobe represented by two widely separated spines, a single curved pointed one near the middle of the side-piece and a stout blunt-tipped one at base of side-piece; a tuft of long hairs at tip of side-piece. Claspette rather slender, not long, the filament continuing of the same diameter, long, slender, pointed, longer than the stem. Clasper large, swollen a little except at base and outer half, with terminal spine shorter than usual, though still fairly long. Tenth sternites small, thickened and hooked at tip. Ninth tergites low, with about five short thick spines.

Larva (Plate XXXIX, Fig. 129)—Head rounded, bulging at the sides; head-hairs in twos, anteantennal tuft multiple. Antennæ long. Longer than the head, slightly inflated, with a hair-tuft beyond the middle, the terminal spines long. Lateral comb of the eighth segment of some twenty-five scales in an irregularly double row. Air-tube about three times as long as wide, the pecten reaching the middle, the outermost teeth detached, followed by a hair-tuft. Anal segment rather long, the dorsal plate reaching almost to the ventral line, not ringed; ventral brush posterior, but with small tufts preceding the barred area. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills shorter than the segment, rounded, slender.

Ontario, New Hampshire, Massachusetts, New Jersey, Minnesota, Michigan.

The larvæ inhabit temporary spring pools, especially those associated with cranberry bogs.

Group PUNCTOR

AËDES (OCHLEROTATUS) HIRSUTERON (Theobald)

CULEX HIRSUTERON Theobald, Mon. Culic., ii, 98, 1902.
CULEX PRETANS Grossbeck, Ent. News, xv, 332, 1904.
CULEX ÆSTIVALIS Dyar, Proc. Ent. Soc. Wash., vii, 48, 1905.
Aëdes æstivalis and *hirsuteron* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 741 and 743, 1917.
Aëdes æstivalis Dyar, Ins. Ins. Mens., v, 102, 119, 1917.
AËDES VINNIPEGENSIS Dyar, Ins. Ins. Mens., vii, 34, 1919.
Aëdes hirsuteron Dyar, Ins. Ins. Mens., vi, 34, 1919.
Aëdes æstivalis Dyar, Ins. Ins. Mens., viii, 18, 1920.
Aëdes (Ochlerotatus) hirsuteron and *æstivalis* Dyar, Ins. Ins. Mens., ix, 77 and 78, 1921.

Aëdes (Heteronycha) hirsuteron Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 94, 1921.
Aëdes (Heteronycha) hirsuteron and *æstivalis* Dyar, Proc. U. S. Nat. Mus., lxii, 61 and 62, 1922.
Aëdes æstivalis Dyar, Ins. Ins. Mens., x, 82, 1922.
Aëdes hirsuteron and *vinnipegensis* Dyar, Ins. Ins. Mens., xi, 41, 1923.

Female—Proboscis moderate, uniform, black. Occiput with pale gray scales. Mesonotum pale gray or yellowish gray-scaled; a broad median dark brown band running back to posterior three-fourths; pleuræ and coxæ with white scales. Abdomen black above, with basal segmental white bands, widening on the sides; venter whitish scaled, with more or less median black on the terminal segments. Legs dark brown, the tibiæ paler below. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate XL, Fig. 130): Side-piece rather long, rounded at tip; apical lobe rounded, running to the middle of side-piece, with short, fine, reversed hairs; basal lobe large, expanded, separated outwardly from the side-piece, with many short setæ from tubercular bases; at its base a very large much thickened spine arising in a dense tuft of rather long setæ. Claspette stem moderate, tapering a little from base; filament short-pointed, angularly widened on dorsal margin, broadly sickle-shaped. Clasper slightly swollen except at base and outer portion, with long terminal spine. Tenth sternites moderate, thickened, especially at the sides, the tip with a tooth. Ninth tergites longer than wide, with about five terminal spines.

Larva (Plate XL, Fig. 130)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs upper in three, lower in two, anteantennal tuft multiple. Lateral comb of the eighth segment of rather numerous scales in a patch. Air-tube about three times as long as wide, the pecten reaching the middle, followed by a hair-tuft. Anal segment about as long as wide, the dorsal plate reaching near the ventral line, not ringed; ventral brush posterior, but with small tufts preceding the barred area. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills twice as long as the segment, pointed.

Eastern North America from Canada and the northern Rockies to Texas.

The larvæ occur in the flood-pools of river valleys, especially in depressions containing dead vegetable matter that are filled by seepage. They frequent small flood-pools where the water is still and may occasionally occur in woodland pools. In seasons where the river floods are not sufficient to fill the higher pools, the eggs do not hatch and no appearance of adults occurs that season. How long the eggs can remain alive on the ground is not known. Mr. E. W. Jackson showed me data indicating a possible life of twelve years.

AËDES (OCHLEROTATUS) ALDRICHI Dyar and Knab

AËDES ALDRICHI Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 57, 1908.
Aëdes aldrichi Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 735, 1917.
Aëdes aldrichi Dyar, Ins. Ins. Mens., v, 121, 1917.
Aëdes aldrichi Hearle, Can. Ent. lii, 115, 1920.
Aëdes aldrichi Dyar, Ins. Ins. Mens., viii, 198, 1920.
Aëdes aldrichi Hearle, Can. Ent. liii, 48, 1921.
Aëdes (Ochlerotatus) aldrichi Dyar, Ins. Ins. Mens., ix, 79, 1921.
Aëdes (Ochlerotatus) sticticus Edwards (in part not Meigen), Bull. Ent. Res., xii, 311, 1921.
Aëdes (Heteronycha) aldrichi Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 94, 1921.
Aëdes (Heteronycha) aldrichi Dyar, Proc. U. S. Nat. Mus., lxii, 63, 1922.
Aëdes aldrichi Hearle, Nat. Res. Council, Rept. No. 17, 35, 1926.

Female—Proboscis moderate, uniform, black. Occiput with yellowish gray scales. Mesonotum yellowish gray with two dark reddish brown lines running back three-fourths and two posterior side-lines, the marking varying in width from narrow to broad contiguous lines; pleuræ and coxæ with white scales. Abdomen black above, with basal segmental grayish white bands, widening at the sides, variable in width, sometimes broken in the middle; venter grayish white. Legs dark brown, tibiæ and first tarsal joint whitish beneath. Wing-scales narrow, all dark, the costa black.

Male—Coloration of the female. Hypopygium (Plate XL, Fig. 131): Side-piece rather long, rounded at tip; apical lobe rounded, running to the middle of side-piece, with short, fine, reversed hairs; basal lobe large, expanded, separated outwardly from the side-piece, with many short setæ from tubercular bases; at its base a very large much thickened spine arising in a dense tuft of rather long setæ. Claspette stem moderate, tapering a little from base; filament short, pointed, angularly widened on dorsal margin, broadly sickle-shaped. Clasper considerably swollen except at base and outer portion, with long terminal spine. Tenth sternites moderate, thickened, especially at the sides, the tip with a tooth. Ninth tergites longer than wide, with about five terminal spines.

Larva—Head rounded, bulging on the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs, upper in two or three, lower in one or two, anteantennal tuft multiple. Lateral comb of the eighth segment of rather numerous scales in a patch. Air-tube about three times as long as wide, the pecten reaching the middle, followed by a hair-tuft. Anal segment about as long as wide, the dorsal plate reaching near the ventral line, not ringed; ventral brush posterior, but with small tufts preceding the barred area. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills twice as long as the segment, pointed.

Both slopes of the northern Rockies, Montana, Idaho, British Columbia, Washington, Oregon.

The adults, especially the females, are unusually small. The larvæ live in the flood-pools of rivers where very extensive floods prevail, in such places as are heavily shaded. The adults therefore follow as the flood-waters are subsiding, and such years as floods are insufficient to fill the pools the eggs do not hatch, but remain alive for another season.

AËDES (OCHLEROTATUS) IDAHOENSIS (Theobald)

Grabhamia spencerii var. IDAHOENSIS Theobald, Mon. Culic., iii, 250, 1903.
Aëdes idahoensis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 727, 1917.
Aëdes idahoensis Dyar, Ins. Ins. Mens., v, 120, 1917.
Aëdes idahoensis Dyar, Ins. Ins. Mens., v, 103, 104, 106, 108, 120, 187, 1917-18.
Aëdes (Ochlerotatus) idahoensis Dyar, Ins. Ins. Mens., ix, 76, 1921.
Aëdes (Heteronycha) idahoensis Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 93, 1921.
Aëdes (Heteronycha) idahoensis Dyar, Proc. U. S. Nat. Mus., lxii, 61, 1922.
Aëdes idahoensis Dyar, Ins. Ins. Mens., xi, 41, 1923.
Aëdes idahoensis Dyar, Ins. Ins. Mens., xii, 43, 1924.

Female—Proboscis rather long, uniform, black. Occiput with gray scales. Mesonotum gray-scaled, with broad, dark, reddish brown median bands running back three-fourths, composed of two approximate lines which are sometimes separated narrowly; no posterior side-lines; pleuræ and coxæ

with white scales. Abdomen black dorsally, with broad basal segmental white bands, sometimes with additional white scales scattered along the mesial line; venter gray, whitish scales with some black ones intermixed. Legs black, tibiæ and all but apical tarsal joints whitish below. Wing-scales narrow, black and pale; costa, first, third and fifth veins black, the rest nearly white.

Male—Coloration of the female. Hypopygium (Plate XL, Fig. 132): Side-piece rather long, rounded at tip; apical lobe rounded, running to the middle of side-piece, with short, fine reversed hairs; basal lobe large, expanded, separated outwardly from the side-piece, with many short setæ from tubercular bases; at its base a very large much thickened spine arising in a dense tuft of rather long setæ. Claspette stem moderate, tapering a little from base; filament short, pointed, angularly widened on dorsal margin, broadly sickle-shaped. Clasper considerably swollen except at base and outer portion, with long terminal spine. Tenth sternites moderate, thickened, especially at the sides, the tip with a tooth. Ninth tergites longer than wide, with about five terminal spines.

Larva—Head rounded, bulging on the sides; antennæ rather small, sparsely spinulated, a tuft near the middle. Head-hairs single, anteantennal tuft in four. Lateral comb of the eighth segment of about fourteen scales in an irregular doubled row. Air-tube about two and a half times as long as wide, the pecten running to the middle, the last two teeth rather widely detached, followed by a small tuft. Anal segment longer than wide, the dorsal plate reaching near the ventral line, somewhat irregular on its edge; ventral brush posterior, but with small tufts preceding the barred area; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills twice as long as the segment, pointed.

Montana, Wyoming, Colorado, Utah, Nevada, eastern Washington and eastern British Columbia.

The larvæ live in spring rain-pools in arid prairies and river valleys which are without grass. The adults have a gray, dingy appearance that well matches the desert plants and sand.

AËDES (OCHLEROTATUS) SPENCERII (Theobald)

CULEX SPENCERII Theobald, Mon. Culic., ii, 99, 1901.
Aëdes spencerii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 723, 1917.
Aëdes spencerii Dyar, Ins. Ins. Mens., vii, 37, 1919.
Aëdes (Ochlerotatus) spencerii Dyar, Ins. Ins. Mens., ix, 75, 1921.
Aëdes (Heteronycha) spencerii Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 92, 1921.
Aëdes (Heteronycha) spencerii Dyar, Proc. U. S. Nat. Mus., lxii, 60, 1922.
Aëdes spencerii Dyar, Ins. Ins. Mens., xi, 41, 1923.

Female—Proboscis rather long, uniform, black. Occiput with gray and yellowish scales. Mesonotum yellowish gray-scaled, with two approximate reddish brown bands and more or less developed posterior half stripes, the marking not contrasted, the two bands often fused. Pleuræ and coxæ with grayish white scales. Abdomen black above, the segments with broad basal and narrow apical grayish white bands and a median dorsal stripe of this color; sometimes the whole dorsum yellowish gray or white; venter whitish, with broken median black band. Legs largely gray-suffused, the tarsi mostly black. Wing-scales narrow, black and whitish, the costa, first, third, and fifth veins black, the rest whitish.

Male—Coloration of the female. Hypopygium (Plate XL, Fig. 133): Side-piece rather long, rounded at tip; apical lobe rounded, running to the middle of side-piece, with short, fine, reversed hairs; basal lobe large, expanded, separated outwardly from the side-piece, with many short setæ from tubercular bases; at its base a very large much thickened spine arising in a dense tuft of rather long setæ. Claspette stem moderate, tapered a little from base; filament short, pointed, angularly widened on dorsal margin, broadly sickle-shaped. Clasper considerably swollen except at base and outer portion, with long terminal spine. Tenth sternites moderate, thickened especially at the sides, the tip with a tooth. Ninth tergites longer than wide, with about five terminal spines.

Larva (Plate XL, Fig. 133)—Head rounded, bulging on the sides; antennæ rather small, sparsely spinulated, a tuft near the middle. Head-hairs single, anteantennal tuft in four. Lateral comb of the eighth segment of about nine scales in an irregular partly doubled row. Air-tube about two and a half times as long as wide, the pecten running to the middle, the last two teeth rather widely detached, followed by a small tuft. Anal segment longer than wide, the dorsal plate reaching near the ventral line, somewhat irregular on its edge; ventral brush posterior, but with small tufts preceding the barred area; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills twice as long as the segment, pointed.

Manitoba, Saskatchewan, Alberta, Minnesota, North Dakota, mountains of Montana and Wyoming.

The larvæ inhabit early spring pools in the grassy prairies, and are also found on the eastern slope of the Rockies on alpine meadows.

AËDES (OCHLEROTATUS) GONIMUS Dyar and Knab

AËDES GONIMUS Dyar and Knab, Ins. Ins. Mens., v, 165, 1918.
Aëdes gonimus Dyar, Ins. Ins. Mens., viii, 199, 1920.
Aëdes (Ochlerotatus) gonimus Dyar, Ins. Ins. Mens., ix, 80, 1921.
Aëdes (Heteronycha) gonimus Dyar, Proc. U .S. Nat. Mus., lxii, 63, 1922.

Female—Proboscis moderate, black. Occiput with yellowish gray scales. Mesonotum with yellowish gray scales and two narrow reddish brown lines running back to three-fourths, also narrow posterior half lines; pleuræ and coxæ with whitish scales. Abdomen black above, with broad basal segmental white bands, widening on the sides; venter with white scales, the apices of the segments black-banded, distinctly so posteriorly. Wing-scales narrow, dusky, costa and first vein black. Legs black, the incisures of the tarsal joints with a few pale scales.

Male—Unknown.

Larva—Unknown.

Texas.

Known only in the female, the position consequently uncertain.

AËDES (OCHLEROTATUS) PUNCTOR (Kirby)

CULEX PUNCTOR Kirby, Rich. Fauna Bor.-Am., iv, 309, 1837.
CULEX PROVOCANS Walker, List Dipt. Brit. Mus., i, 7, 1848.
CULISELSA AUROIDES Felt, Bull. 97, N. Y. St. Mus., 448, 1905.
Aëdes provocans, auroides, and *punctor* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 748, 749 and 754, 1917.
Aëdes punctor Dyar, Ins. Ins. Mens., vii, 14, 1919.
Aëdes punctor Dyar, Ins. Ins. Mens., viii, 3, 1920.

Aëdes (Ochlerotatus) punctor Dyar, Ins. Ins. Mens., ix, 71, 1921.
Aëdes (Ochlerotatus) punctor Edwards, Bull. Ent. Res., xii, 313, 1921.
Aëdes (Heteronycha) punctor Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 95, 1921.
Aëdes (Heteronycha) punctor Dyar, Proc. U. S. Nat. Mus., lxii, 56, 1922.
Aëdes punctor Dyar Ins. Ins. Mens., xi, 41, 1923.
Aëdes punctor Matheson, Ins. Ins. Mens., xii, 24, 1924.
Aëdes punctor Dyar, Ins. Ins. Mens., xii, 26, 1924.
Aëdes punctor Dyar, Ins. Ins. Mens., xii, 42, 1924.
Aëdes punctor Hearle, Nat. Res. Coun., Rept. No. 17, 50, 1926.

Female—Proboscis rather long, slender, black. Occiput with yellowish or whitish scales, becoming dark posteriorly. Mesonotum yellow or whitish on the sides, variable in ornamentation. Typically there is a quadrate dark-brown band running back over half; but this may be divided into two lines with posterior half-lines, or the mesonotum may be entirely reddish brown-scaled. Pleuræ and coxæ with white scales. Abdomen black, with basal segmental white bands, widening at the sides, variable in width, commonly narrow; venter whitish-scaled, the segments black-banded at their apices, especially posteriorly. Legs dark brown, tarsi black; extreme tips of femora white. Wing-scales narrow, dark.

Male—Coloration of the female. Hypopygium (Plate XLI, Fig. 135): Side-piece long, stout, rounded at tip; apical lobe low and broad, with many short blade-shaped reversed setæ; basal lobe triangularly expanded, with tubercles and setæ; a slender spine with hooked tip at the side, arising in a group of setæ. Claspette with the stem rather short and stout, curved; filament moderate, three-fourths as long as the stem, broadly sickle-shaped. Clasper large, somewhat swollen except at base and outer portion, with long terminal spine. Tenth sternites narrow, thickened and rounded at tip. Ninth tergites longer than wide, with about six spines over the rounded tip.

Larva (Plate XLI, Fig. 135)—Head rounded, bulging at the sides; antennæ moderate, sparsely spined, with a tuft about the middle. Head-hairs in twos, anteantennal tuft in fours. Lateral comb of the eighth segment of eight to seventeen scales in an irregularly doubled row. Air-tube three times as long as wide, pecten fine and even, not quite reaching the middle; followed by a four-haired tuft. Anal segment longer than wide; lateral hair single, small. Anal gills longer than the segment, pointed.

Canadian forested region from the Atlantic to Rocky Mountains, northern States, Maine, New Hampshire, Vermont, northern New York, Michigan, Minnesota, Rocky Mountains to Colorado and Yukon Territory, upper Yukon Valley. Also a very close representative, perhaps specifically identical (*meigenanus* Dyar*) in England and north Europe.

The larvæ come in early spring pools filled with snow-water, and seem to prefer the very cold ones containing much moss.

AËDES (OCHLEROTATUS) PUNCTODES Dyar

AËDES PUNCTODES Dyar, Ins. Ins. Mens., x, 2, 1922.
Aëdes (Heteronycha) punctodes Dyar, Proc. U. S. Nat. Mus., lxii, 55, 1922.

Female—Proboscis moderate, uniform, black. Occiput with grayish scales shading to brown behind. Mesonotum with reddish brown scales, grayish over the antescutellar space; unmarked, or with more or less distinct two

* Ins. Ins. Mens., ix, 72, 1921.

blackish lines running back three-fourths and posterior half lines, although these are but traces; pleuræ and coxæ with whitish scales. Abdomen black, with basal segmental white bands, varying in width; venter whitish-scaled, the tips of the segments and a median line blackish and more or less developed. Legs black with slight bronzy reflection. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate XLII, Fig. 134): Side-piece long, stout, rounded at tip; apical lobe low and broad, with many short blade-shaped reversed setæ; basal lobe triangularly expanded, with tubercles and setæ; a slender spine with hooked tip at the side arising in a group of setæ. Claspette with the stem moderate, curved, a little narrowed outwardly; filament long, but not as long as the stem, pointed outwardly, a little swollen toward base. Clasper large, somewhat swollen except at base and outer portion, with long terminal spine. Tenth sternites narrow, thickened and rounded at tip. Ninth tergites small, with four or five spines.

Larva—Head rounded, bulging at the sides; antennæ moderate, sparsely spined, with a tuft about the middle. Head-hairs in twos, anteantennal tuft in fours. Lateral comb of the eighth segment of eight to seventeen scales in an irregularly doubled row. Air-tube three times as long as wide, pecten fine and even, not quite reaching the middle, followed by a four-haired tuft. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and six-haired tuft on each side; lateral hair single, small. Anal gills longer than the segment, pointed.

Alaska (coastal region above the barrier islands), Northwest Territory (Mackenzie River delta); Colorado (at 10,000 feet).

This species is subarctic, replacing *punctor* in the north and at high altitudes, but replaced in turn by *alpinus* in the true arctic. The larvæ occur in pools filled by the water from melting snow in the spring.

AËDES (OCHLEROTATUS) LABRADORIENSIS Dyar and Shannon

AËDES LABRADORIENSIS Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 78, 1925.

Female—Proboscis moderate, uniform, black. Occiput with grayish scales shading to brown behind. Mesonotum with reddish brown scales, grayish over the antescutellar space; unmarked, or with more or less distinct two blackish lines running back three-fourths and posterior half lines, although these are but traces; pleuræ and coxæ with whitish scales. Abdomen black, with basal segmental white bands, varying in width; venter whitish-scaled, the tips of the segments and a median line blackish and more or less developed. Legs black with slight bronzy reflection. Wing-scales narrow, all dark.

Male—Unknown.

Larva—Unknown.

Labrador.

This may prove to be not distinct from *punctodes*, or a species allied to *pearyi*, which see.

AËDES (OCHLEROTATUS) ALPINUS (Linnæus)

CULEX ALPINUS Linnæus, Flora Lapp., 364, 1737; 2d ed., 381, 1792.
CULEX NIGRIPES Zetterstedt, Ins. Lapp., 807, 1838.
AËDES INNUITUS Dyar and Knab, Ins. Ins. Mens., v, 166, 1917.
Culex nigripes Dyar and Knab, Ins. Ins. Mens., v, 167, 1917.
AËDES N. SP. Dyar, Rep. Can. Arct. Exp., iii, Pt. C, 33, 1919.

Aëdes alpinus Dyar, Ins. Ins. Mens., viii, 53, 1920.
Aëdes (Ochlerotatus) alpinus Edwards, Bull. Ent. Res., xii, 309, 1921.
Aëdes (Heteronycha) alpinus Dyar, Proc. U. S. Nat. Mus., lxii, 84, 1922.
Aëdes alpinus Dyar, Ins. Ins. Mens., x, 73, 1922.
Aëdes alpinus Twinn, Can. Ent., lix, 47, 1927.

Female—Proboscis rather long, slender, black. Occiput with red-brown scales, paler at the sides. Mesonotum with dark red-brown scales, uniformly colored; pleuræ and coxæ with gray scales, the setæ long and dense, especially above fore coxæ. Abdomen black above with basal segmental white bands, somewhat widening on the sides; venter grayish white-scaled. Legs black, more or less grayish intermixed. Wing-scales narrow, dark.

Male—Coloration of the female. The ventral hairs are more abundant than in the female and darker. Hypopygium (Plate XLIII, Fig. 142): Side-piece moderate, conical; apical lobe small, with only very short fine pointed setæ; basal lobe roundedly expanded, the inner part with very fine short pointed setæ, the outer with some fifteen long coarse setæ, the outermost the strongest and spine-like, through the gradation is gradual. Claspette stem long, finely hirsute basally, curved; filament as long as the stem, pointed at tip, thick, expanded somewhat broadly and blade-like on one side. Clasper large, somewhat swollen except at tip, with long terminal spine. Ninth tergites narrow, truncate at tip, with a more or less distinct lateral spine. Ninth tergites longer than wide, bristling at tip, with some twenty sharp spines. Mesosome divided into two stout incurved teeth, which leave a nearly circular lacuna between them.

Larva (Plate XLIII, Fig. 142)—Head rounded, bulging on the sides; antennæ rather long, slender, a two-haired tuft at the middle. Head-hairs single, anteantennal tuft in two. Lateral comb of the eighth segment of fifteen scales in a narrow patch; single scale with long terminal thorn. Air-tube about three times as long as wide, tapered on the outer half; pecten reaching beyond the middle, the last three teeth detached, the last tooth inclosing a four-haired tuft. Anal segment ringed by the plate, the ventral brush posterior; dorsal tuft a rather long hair and a five-haired tuft on each side. Anal gills as long as the segment, pointed.

Arctic regions of America and Europe; Greenland, Arctic coast of Alaska, and Canadian Northwest Territory.

The larvæ occur in early spring pools from melting ice and snow. The male hypopygium has undergone considerable deterioration from the *punctor* type, but the larval characters show the species to be a member of this group.

AËDES (OCHLEROTATUS) LEUCONOTIPS Dyar

AËDES LEUCONOTIPS Dyar, Ins. Ins. Mens., viii, 24, 1920.
Aëdes (Ochlerotatus) leuconotips Dyar, Ins. Ins. Mens., ix, 74, 1921.
Aëdes (Heteronycha) leuconotips Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 97, 1921.
Aëdes (Heteronycha) leuconotips Dyar, Proc. U. S. Nat. Mus., lxii, 57, 1922.

Female—Proboscis rather long, uniform, black. Occiput with brownish yellow scales. Mesonotum of the same brownish yellow, with two dark brown lines running back three-fourths and slight faint posterior half lines; pleuræ and coxæ with grayish white scales. Abdomen black above with basal segmental broad whitish bands, widening on the sides; venter grayish

white-scaled, the apices of the segments more or less distinctly black-banded apically. Legs black. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate XLII, Fig. 139): Side-piece elongate, rounded at tip; apical lobe low, running to the middle of side-piece, with short recurved setæ; basal lobe triangularly expanded with tubercles and setæ; on the inner angle a group of long setæ containing a long, stout, curled spine. Claspette with the stem rather stout, a little enlarged mesially; filament broadly sickle-shaped, about two-thirds as long as the stem. Clasper large, curved, a little narrower at base and tip, with long terminal spine. Tenth sternites narrow, thickened at one margin and tip, with a slight lateral point. Ninth tergites long, narrow, finger-shaped, with three or four stout spines at tip.

Larva (Plate XLII, Fig. 139)—Head rounded, bulging at the sides; antennæ moderate, sparsely spined, with a tuft about the middle. Head-hairs in twos or the lower single, anteantennal tuft in four. Lateral comb of the eighth segment of seven scales in a row. Air-tube three times as long as wide, pecten fine and even, not quite reaching the middle, followed by a six-haired tuft. Anal segment ringed by the plate, rather short and broad, the ventral brush posterior. Dorsal tuft a long hair and brush on each side. The larvæ have a whitish appearance and occur solitary in the pools.

Coast of British Columbia and Alaska within the barrier-island region.

The larvæ are found in the "muskeg" pools in the spring, small collections of water which form on hillsides and summits.

This species is close to and perhaps not specifically distinct from *cyclocerculus*. There appeared to me to be two species at the time of collecting, but the characters are not strong, and the locality has not been subsequently revisited.

AËDES (OCHLEROTATUS) CYCLOCERCULUS Dyar

AËDES CYCLOCERCULUS Dyar, Ins. Ins. Mens., viii, 23, 1920.
Aëdes (Ochlerotatus) cyclocerculus Dyar, Ins. Ins. Mens., ix, 74, 1921.
Aëdes (Heteronycha) cyclocerculus Dyar, Trans. Roy. Can. Inst., Toronto, xiii, Pt. 1, 97, 1921.
Aëdes (Heteronycha) cyclocerculus Dyar, Proc. U. S. Nat. Mus., lxii, 58, 1922.

Female—Proboscis rather long, uniform, black. Occiput with brownish yellow scales. Mesonotum of the same brownish yellow, with two dark brown lines running back three-fourths and dark distinct posterior half lines; pleuræ and coxæ with grayish white scales. Abdomen black above with basal segmental broad whitish bands, widening on the sides; venter grayish white-scaled, the apices of the segments more or less distinctly black-banded apically. Legs black. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate XLIII, Fig. 140): Side-piece elongate, rounded at tip; apical lobe low, running to the middle of side-piece, with short recurved setæ; basal lobe triangularly expanded, with tubercles and setæ; on the inner angles a group of long setæ containing a long, strong, curled spine. Claspette with the stem rather stout, a little enlarged mesially; filament broadly sickle-shaped, about two-thirds as long as the stem. Clasper large, curved, a little narrower at base and tip, with long terminal spine. Tenth sternites narrow, thickened at one margin and tip, with a single lateral point. Ninth tergites long, narrow, finger-shaped, with three or four stout spines at tip.

Larva (Plate XLIII, Fig. 140)—Head rounded, bulging at the sides;

antennæ moderate, sparsely spined, with a tuft about the middle. Head-hairs upper one to three, lower two or one, anteantennal tuft about six. Lateral comb of the eighth segment of six or seven scales in a row. Air-tube three times as long as wide, pecten fine and even, not quite reaching the middle, followed by a five-haired tuft. Anal segment ringed by the plate, short and quadrate, the ventral brush posterior. Dorsal tuft a long hair and brush on each side. The larvæ are small and dark and occur gregariously in certain pools.

Coast of British Columbia and Alaska within the barrier-island region.

The larvæ are found in the "muskeg" pools in the spring, small collections of water which form on hillsides and summits.

AËDES (OCHLEROTATUS) ABORIGINIS Dyar

AËDES ABORIGINIS Dyar, Ins. Ins. Mens., v, 99, 1917.
Aëdes aboriginis Dyar, Ins. Ins. Mens., viii, 25, 1920.
Aëdes (Ochlerotatus) aboriginis Dyar, Ins. Ins. Mens., ix, 73, 1921.
Aëdes (Heteronycha) aboriginis Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 98, 1921.
Aëdes (Heteronycha) aboriginis Dyar, Proc. U. S. Nat. Mus., lxii, 58, 1922.
Aëdes aboriginis Dyar, Ins. Ins. Mens., xii, 178, 1924.
Aëdes aboriginis Hearle, Nat. Res. Counc., Rept. No. 17, 51, 1926.

Female—Proboscis rather long, uniform, black. Occiput with brownish yellow scales. Mesonotum of the same brownish yellow, with two dark brown lines running back three-fourths and similar broad posterior half lines variable in distinctness; pleuræ and coxæ with grayish white scales. Abdomen black above with basal segmental broad whitish bands, widening on the sides; venter grayish white-scaled, the apices of the segments more or less distinctly black-banded apically. Legs black. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate XLI, Fig. 137): Side-piece elongate, rounded at tip; apical lobe low, running to the middle of side-piece, with short recurved setæ; basal lobe triangularly expanded with tubercles and setæ; on the inner angle a group of long setæ containing a long, slender, curled spine. Claspette with the stem rather stout, a little enlarged mesially; filament broadly sickle-shaped, about two-thirds as long as the stem. Clasper large, curved, a little narrower at base and tip, with long terminal spine. Tenth sternites narrow, thickened at one margin and tip, with a single lateral point. Ninth tergites long, narrow, finger-shaped, with three or four stout spines at tip.

Larva (Plate XLI, Fig. 137)—Head rounded, bulging at the sides; antennæ moderate, sparsely spined, with a tuft about the middle. Head-hairs upper three to five, lower in two to four, anteantennal tuft about six. Lateral comb of the eighth segment of about twenty scales in a patch. Air-tube three times as long as wide, pecten fine and even, not quite reaching the middle, followed by a four-haired tuft. Anal segment not ringed by the plate, which comes near the ventral line, the ventral brush posterior, but with small tufts preceding the barred area. Dorsal tuft a long hair and brush on each side. Anal gills longer than the segment, pointed.

Coastal region Alaska and British Columbia within the barrier-island region, lower Fraser Valley, mountains and coastal forests of Washington.

The larvæ occur in early forest-pools; in the north they avoid the muskeg pools, and are found in ditches and abandoned excavations.

This species is similar in most characters to the other *punctor* derivitives; but fortunately the peculiar larval difference renders its distinction certain.

AËDES (OCHLEROTATUS) HEXODONTUS Dyar

AËDES HEXODONTUS Dyar, Ins. Ins. Mens., iv, 83, 1916.
Aëdes hexodontus Dyar, Ins. Ins. Mens., v, 13, 1917.
Aëdes (Heteronycha) hexodontus Dyar, Ins. Ins. Mens., viii, 168, 1920.
Aëdes (Ochlerotatus) hexodontus Dyar, Ins. Ins. Mens., ix, 73, 1921.
Aëdes (Heteronycha) hexodontus Dyar, Proc. U. S. Nat. Mus., lxii, 59, 1922.
Aëdes (Ochlerotatus) hexodontus Freeborn, Mosq. of Calif., 375, 1926.

Female—Proboscis rather long, uniform, black. Occiput with brownish yellow scales. Mesonotum of the same brownish yellow or light yellow, with two dark brown lines running back three-fourths and posterior half lines present or absent, the coloration being very variable; pleuræ and coxæ with grayish white scales. Abdomen black above with basal segmental broad whitish bands, widening on the sides; venter grayish white-scaled, the apices of the segments more or less distinctly black-banded apically. Legs black. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate XLII, Fig. 138): Side-piece elongate, rounded at tip; apical lobe low, running to the middle of side-piece, with short blade-shaped setæ; basal lobe triangularly expanded with tubercles and setæ; on the inner angle a group of long setæ containing a long, slender, curled spine. Claspette with the stem rather stout, a little enlarged mesially; filament broadly sickle-shaped, about two-thirds as long as the stem. Clasper large, curved, a little narrower at base and tip, with long terminal spine. Tenth sternites narrow, thickened at one margin and tip, with a single lateral point. Ninth tergites long, narrow, finger-shaped, with three or four stout spines at tip.

Larva (Plate XLII, Fig. 138)—Head rounded, bulging at the sides; antennæ moderate, sparsely spined, with a tuft about the middle. Head-hairs double or lower in three, anteantennal tuft in four. Lateral comb of the eighth segment of six scales in a row. Air-tube three times as long as wide, pecten fine and even, not quite reaching the middle, followed by a five-haired tuft. Anal segment ringed by the plate, the ventral brush posterior. Dorsal tuft a long hair and brush on each side.

Mountains of California and Oregon.

The larvæ occur in early spring-pools of various character, the larvæ often scattered, not gregarious. They are somewhat late in development, being the latest to disappear of the early spring species of the mountains.

AËDES (OCHLEROTATUS) VENTROVITTIS Dyar

AËDES VENTROVITTIS Dyar, Ins. Ins. Mens., iv, 84, 1916.
Aëdes ventrovittis Dyar, Ins. Ins. Mens., v, 18, 1917.
AËDES FISHERI Dyar, Ins. Ins. Mens., v, 19, 1917.*
Aëdes (Heteronycha) fisheri Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes (Heteronycha) fisheri Dyar, Ins. Ins. Mens., viii, 169, 1920.
Aëdes (Aëdes) ventrovittis Dyar, Ins. Ins. Mens., viii, 172, 1920.
Aëdes (Ochlerotatus) fisheri Dyar, Ins. Ins. Mens., ix, 75, 1921.
Aëdes (Heteronycha) fisheri Dyar, Proc. U. S. Nat. Mus., lvi, 59, 1922.
Aëdes (Aëdes) ventrovittis Dyar, Proc. U. S. Nat. Mus., lvi, 94, 1922.
Aëdes ventrovittis Dyar, Ins. Ins. Mens., xii, 181, 1924.
Aëdes (Ochlerotatus) ventrovittis Freeborn, Mosq. of Calif., 378, 1926.

* Compare Ae. (Aëdimorphus) fisheri Barraud, Ind. Med. Jn. Med. R. S. 15: 664, 1926

Female—Proboscis rather long, uniform, black. Occiput with dark and light scales mixed, the light ones forming lateral spots. Mesonotum brown or gray-brown, grizzled with whitish scales with or without two median dark brown lines reaching beyond the middle and posterior half lines; pleuræ and coxæ with brownish gray scales. Abdomen black with basal segmental narrow whitish bands, which are often cleft in the middle and widen on the sides or obsolete dorsally; venter grayish white, the segments with more or less developed apical black bands and also a medioventral black stripe. Legs black, the tibiæ and first tarsal joints largely intermixed with whitish scales. Wing-scales narrow, rather pale, but the costa, first, and fifth veins distinctly black.

Male—Coloration of the female, except that the thorax above and below is covered with long, dense, black hairs. Hypopygium (Plate XLIII, Fig. 141): Side-piece large, rounded at tip; apical lobe an elliptical thickened area bearing blade-shaped reversed setæ; basal lobe rather small, triangularly expanded, the outer and larger portion free from the side-piece, with tubercles and short stiff setæ; inner margin with dense long setæ, the marginal one scarcely stouter, but with curled tip. Claspette with long and rather slender stem, the filament short, with an angular expansion on outer margin, the whole about one-third as long as the stem. Clasper large, thickened except on apical portion, with moderately long terminal spine. Tenth sternites strongly thickened at tip and on one margin, rounded, with only slight inner dentation. Ninth tergites quadrate, with five spines, the innermost two small.

Larva (Plate XLIII, Fig. 141)—Head rounded, bulging on the sides, antennæ moderate. Head-hairs single, anteantennal tuft few-haired. Lateral comb of the eighth segment of about seven scales in an irregular row. Air-tube about three times as long as wide, the pecten reaching near the middle, the last two teeth widely detached, followed by a hair-tuft. Anal segment with the plate reaching near the ventral line, not ringed; dorsal tuft a long hair and brush on each side, the ventral brush posterior, but with small tufts preceding the barred area nearly to base. Anal gills long, pointed.

Mountains of California and Washington.

This is a high-altitude species, breeding at 6,000 to 10,000 feet in early pools filled directly by snow-water in meadows. The adults emerge early, distributing upward, but also more slowly downward, and in the higher valleys are the earliest mosquitoes encountered, although soon disappearing. It is a small species, the males curiously woolly, as in the arctic *alpinus*.

AËDES (OCHLEROTATUS) IMPLACABILIS (Walker)

CULEX IMPLACABILIS Walker, List. Dipt. Brit. Mus., i, 7, 1848.
CULEX ABSERRATUS Felt and Young, Science, n. s., xxx, 313, 1904.
AËDES CENTROTUS Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 747, 1917.
Aëdes abserratus and *impiger* (not Walker) Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 752 and 755, 1917.
AËDES DYSANOR Dyar, Ins. Ins. Mens., ix, 70, 1921.
Aëdes (Heteronycha) dysanor Dyar, Proc. U. S. Nat. Mus., lxii, 56, 1922.
Aëdes abserratus Matheson, Ins. Ins. Mens., xii, 24, 1924.
Aëdes implacabilis Dyar, Ins. Ins. Mens., xii, 26, 1924.

Female—Proboscis rather long, uniform, black. Occiput with brown or yellow scales, whitish on the sides. Mesonotum dull yellow-scaled with two

median dark brown lines running back two-thirds and posterior half-lines, separate or fused or the whole mesonotum brown; pleuræ and coxæ with grayish white scales. Abdomen black with broad basal segmental white bands; venter whitish-scaled with more or less developed apical segmental black bands. Legs black with bronzy reflection. Wing-scales narrow, dark.

Male—Coloration of the female. Hypopygium (Plate XLI, Fig. 136): Side-piece large, rounded at tip; apical lobe low, running to middle of side-piece, with short, curved, reversed setæ; basal lobe conically produced, not expanded, with a group of long hairs at the end, the marginal one somewhat thickened and spine-like. Claspette stem slender, rather long, the filament large, broadly sickle-shaped, pointed, almost as long as the stem. Clasper large, somewhat thickened except at base and apical portion, with long terminal spine. Tenth sternites narrow, thickened and infuscated at tip, with a laterally directed point. Ninth sternites quadrate, longer than wide, with six spines—four terminals, two median.

Larva (Plate XLI, Fig. 136)—Head rounded, bulging at the sides. Antennæ moderate, spined, a tuft at the middle. Head-hairs single, anteantennal tuft in about four. Lateral comb of the eighth segment of six scales in a line. Air-tube about three times as long as wide, the pecten not reaching the middle, occasionally the terminal teeth somewhat detached. Anal segment longer than wide, ringed by the plate, the ventral brush posterior. Dorsal tuft two long hairs on each side. Anal gills moderate, tapered.

New Hampshire, Vermont, Ontario, northern New York, Wisconsin, hills of Massachusetts; also recorded from New Jersey, the specimens having been kindly submitted to me by Mr. W. H. W. Komp.

The larvæ live in early cold pools, associated with *punctor*. It is a derivative species from *punctor*, inhabiting the eastern part of its range.

AËDES (OCHLEROTATUS) ALBIFASCIATUS (Macquart)

CULEX ALBIFASCIATUS Macquart, Dipt. Exot., i, 35, 1838.
CULEX VITTATUS Philippi (not Bigot, 1861), Verh. zool.-bot. Ges. Wien, xv, 596, 1865.
Culex albifasciatus Lynch Arribálzaga, Rev. Mus. de La Plata, i., 144, 1891.
Culex albifasciatus Theobald, Mon. Culic., ii, 40, 1901.
Culex albifasciatus Theobald, Mon. Culic., v, 356, 1910.
Culex albifasciatus Lutz, Mem. Inst. O. Cruz, x, 86, 1919.
Aëdes albifasciatus Dyar, Ins. Ins. Mens., vii, 88, 1919.
AËDES PHILIPPII Dyar, Ins. Ins. Mens., xii, 129, 1924.

Female—Proboscis long and slender, black. Occiput with golden yellow scales on vertex, broadly dark brown on the sides. Mesonotum dull golden scaled, a broad band in the middle running back three-fourths and narrow stripes along the sides of dark brown; pleuræ and coxæ with grayish white scales. Abdomen black, with median whitish stripe, widening posteriorly on the segments, and lateral triangular segmental spots; venter whitish-scaled, with series of median black dashes. Legs black, with whitish scales on tibiæ and first tarsal joint below. Wing-scales narrow, dark, but the costa, subcosta, third, and fifth veins appear blacker than the intermediate ones.

Male—Coloration as in the female, the palpi largely intermixed with whitish scales, the hairs black. Hypopygium (Plate XLVI, Fig. 151): Side-piece large, rounded at tip; apical lobe low, running to the middle of side-piece, with short, stout, blade-like recurved setæ; basal lobe expanded tubercular and setose, free from the side-piece outwardly; a group of long

setæ at the base, of which the marginal one is large, hooked and thin. Claspette with rather long slender stem, the filament shortly but rather broadly sickle-shaped. Clasper large, curved, narrowed on outer portion, with long terminal spine. Tenth sternites large, narrowed outwardly, thickened, the tooth laterally directed. Ninth tergites longer than wide, with about five terminal spines. Mesosome a cone cleft at apex.

Larva (Plate XLVI, Fig. 151)—Head rounded, bulging at the sides. Antennæ moderate, slender, uniform, a small tuft near the middle. Head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of about fourteen thorn-shaped scales in a narrow patch. Air-tube about twice as long as wide, conically tapered outwardly; pecten reaching the middle, the last two teeth coarse and widely spaced, followed distantly by a multiple tuft. Anal segment rather longer than wide, the plate reaching well down the sides but not encircling; ventral brush with two tufts preceding the barred area. Dorsal tuft a long hair and brush on each side; a single lateral hair. Anal gills about as long as the segment, blunt.

Argentina, Chile.

Apparently a desert form of the *punctor* group allied to *spencerii* and *idahoensis*.

Mr. F. W. Edwards (in litt.) distinguishes a dark and a light form. Dark form (*albifasciatus*), South Chile and Argentina. Practically no pale scales on the wings and none on last two hind tarsal segments. Light form *(philippii)*, semiarid country, Los Andes, Santiago, and Concepción. Scattered pale scales on the wings, especially on stem of fifth vein, and traces of pale rings on last two hind tarsal segments. The male hypopygium is the same in both.

AËDES (OCHLEROTATUS) COLONARIUS Dyar

AËDES COLONARIUS Dyar, Ins. Ins. Mens., xii, 130, 1924.

Female—Proboscis moderate, uniform, black. Occiput with brown and white scales on the vertex, a small black patch on the side, surrounded by white. Mesonotum with dark brown scales, variegated with little lines and mottling of white; pleuræ and coxæ with grayish white scales. Abdomen black above, with narrow basal segmental white lines that widen strongly on the sides and dorsally form long basal triangles or a continuous dorsal line; venter whitish-scaled, each segment with a subbasal round black spot or dash. Legs black, femora, tibiæ, and first tarsal joint sprinkled with white scales, predominating on the femora; tarsi black, with broad basal white rings on the joints, large on the hind tarsi, smaller on fore and mid. Wing-scales narrow, black, sometimes intensified at base of third vein, the membrane iridescent.

Male—Coloration of the female, the black ventral marks on the abdomen V-shaped. Hypopygium: Side-piece long, uniform, nearly three times as long as wide, the tip rounded; basal lobe conical, expanded and tubercular, setæ rather short and stiff, except at the basal angle, where a group of longer setæ terminates in a long hooked spine; apical lobe rounded elliptical, cushioned, with fine short reversed setæ. Clasper long, slightly thickened centrally and curved at tip, with long terminal spine. Claspette with rather slender, moderate stem, the filament shorter than it and rather stoutly sickle-shaped. Tenth sternites thickened on one margin, the tip darkly colored and hooked. Ninth tergites finger-shaped, with about eight stout setæ scattered over the tip.

Larva—Unknown.

Chile (Azapa Valley and Concepción).

This species is allied to *albifasciatus* Macquart, but with white rings developed upon the tarsi.

Fathers Jaffnel and Perión have lately collected this species in Concepción; adults bred October 10, 1927; but the larva remains to be described.

Group COMMUNIS

AËDES (OCHLEROTATUS) IMPIGER (Walker)

CULEX IMPIGER Walker, List. Dipt. Brit. Mus., i, 6, 1848.
AËDES DECTICUS Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., 737, iv, 1917.
Aëdes decticus Dyar, Ins. Ins. Mens., vii, 21, 1919.
Aëdes impiger Dyar, Ins. Ins. Mens., viii, 8, 1920.
Aëdes (Heteronycha) impiger Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 100, 1921.
Aëdes impiger Dyar, Ins. Ins. Mens., x, 61, 1922.
Aëdes (Ochlerotatus) impiger Dyar, Ins. Ins. Mens., x, 7, 1922.
Aëdes impiger Dyar, Ins. Ins. Mens., x, 85, 1922.
Aëdes (Heteronycha) impiger Dyar, Proc. U. S. Nat. Mus., lxii, 63, 1922.
Aëdes impiger Dyar, Ins. Ins. Mens., xi, 43, 1923.
Aëdes impiger Dyar, Ins. Ins. Mens., xii, 44, 1924.
Aëdes (Ochlerotatus) impiger Freeborn, Mosq. of Calif. 392, 1926.

Female—Proboscis rather long, uniform, black. Occiput dull yellowish-scaled, with a black spot each side of vertex and one on the side, but these marks may be diffused or lost. Mesonotum with brown scales in the middle of the disk, pale gray ones around the margin, two slender black lines running back two-thirds, and posterior half lines, the whole marking subject to variation; pleuræ and coxæ with grayish white scales. Abdomen black with basal segmental white bands, widening a little on the sides; venter grayish white-scaled with median segmentarily broken black line. Legs black with slight bronzy reflection. Wing-scales narrow, blackish.

Male—Coloration of the female. Hypopygium (Plate XLIV, Fig. 143): Side-piece long and slender, rounded at tip; apical lobe small, conical, nearly bare, two or three small setæ on the outer side are outwardly directed when the lobe is inflated; basal lobe low conical, not large, with some half dozen setæ in a row, the marginal one thick and spine-like. Claspette long, slender, curved, a little hirsute toward base; filament widening on one margin toward base, long, pointed, sickle-shaped. Clasper large, slightly inflated except at base and apical portion, with long terminal spine. Tenth sternites narrowed and thickened outwardly, the tips with a laterally directed tooth. Ninth tergites small, irregularly conical, with four or five rather long spines.

Larva (Plate XLIV, Fig. 143)—Head rounded, bulging on the sides; antennæ moderate, slightly spined, a tuft near the middle. Head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of about fifteen scales in a narrow triangular patch. Air-tube about two and a half times as long as wide, the pecten not reaching the middle, followed by a three-haired tuft. Anal segment with the plate reaching well down the sides; ventral brush posterior, with small tuft preceding the barred area. Dorsal tuft a long hair and five-haired tuft on each side; lateral hair single, small. Anal gills small, shorter than the segment.

Forested Canadian region and northern edge of United States from the Atlantic to the Rockies; Rocky Mountains from Colorado to the Yukon Valley; mountains of California.

This is one of the earliest species in the early spring pools; the adults fly till June in woods, but never occur in numbers, this species being only about one-tenth as common as *cataphylla* where the two occur together.

AËDES (OCHLEROTATUS) CATAPHYLLA Dyar

AËDES CATAPHYLLA Dyar, Ins. Ins. Mens., iv, 86, 1916.
Aëdes cataphylla Dyar, Ins. Ins. Mens., v, 17, 1917.
AËDES PRODOTES Dyar, Ins. Ins. Mens., v, 118, 1917.
Aëdes prodotes Dyar, Ins. Ins. Mens., vii, 22, 1919.
Aëdes prodotes Dyar, Ins. Ins. Mens., viii, 9, 1920.
Aëdes (Heteronycha) cataphylla Dyar, Ins. Ins. Mens., viii, 167, 1920.
Aëdes (Heteronycha) prodotes Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 1921.
Aëdes (Heteronycha) cataphylla Dyar, Proc. U. S. Nat. Mus., xlii, 64, 1922.
Aëdes (Ochlerotatus) cataphylla Dyar, Ins. Ins. Mens., x, 7, 1922.
Aëdes cataphylla Dyar, Ins. Ins. Mens., x, 85, 1922.
Aëdes cataphylla Dyar, Ins. Ins. Mens., xi, 42, 1923.
Aëdes cataphylla Hearle, Nat. Res. Counc., Rept. No. 17, 55, 1926.
Aëdes (Ochlerotatus) cataphylla Freeborn, Mosq. of Calif., 388, 1926.

Female—Proboscis moderate, uniform, black with gray scales beneath. Occiput gray-scaled, a black patch on each side. Mesonotum with brown scales in the middle, gray ones around the sides, usually without but sometimes with the customary marking of two black lines and posterior half lines. The marking is variable, specimens with the brown extensive and no black markings run close to *intrudens* in appearance; pleuræ and coxæ with grayish white scales. Abdomen black with basal segmental whitish bands, widening on the sides; venter grayish white-scaled, the apices of the segments more or less distinctly black-banded. Legs black intermixed with many white scales, appearing gray. Wing narrow, dark, somewhat aggregated at the base of third vein and forks of second and fourth, forming incipient spots. The spotting is shown in the Californian race *(cataphylla)* but does not appear in the Rocky Mountain race *(prodotes)*. Specimens from Cranbrook, British Columbia (in the Rockies), however, show it, so that it is not a diagnostic character.

Male—Coloration of the female. Hypopygium (Plate XLIV, Fig. 144): Side-piece rather long and narrow, rounded at tip; apical lobe small, conical, bare; basal lobe conically produced, small, with a row of long setæ, the marginal one strong and spine-like with curved tip. Claspette with long, slender, curved stem, the filament similar, long, but not as long as the stem, roundedly angularly widened on the outer side, sickle-shaped. Clasper large, slightly swollen except towards tip, with long terminal spine. Tenth sternites with the tip compressed, thickened and hooked. Ninth tergites small, as long as wide, bearing each seven or eight rather long spines.

Larva (Plate XLIV, Fig. 144)—Head rounded, bulging on the sides; antennæ moderate, slightly spined, a tuft near the middle. Head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of about fifteen scales in a narrow triangular patch. Air-tube about two and a half times as long as wide, the pecten not reaching the middle, followed by a three-haired tuft, beyond which again two or three widely spaced pecten teeth. Anal segment with the plate reaching well down the sides; ven-

tral brush posterior, with small tuft preceding the barred area. Dorsal tuft a long hair and small brush on each side.

Rocky Mountains from Colorado to the Yukon Valley; mountains of California.

The larvæ occur in the earliest spring pools, mixed in smaller proportion with those of *impiger*. They favor grassy pools along river-banks, and sometimes occur in very large numbers. This was the dominant species in the Lake Louise and Cranbrook region of the Canadian Rockies and used to share honors equally with *intrudens* at Banff, until anti-mosquito work upset the natural balance.

AËDES (OCHLEROTATUS) PACIFICENSIS Hearle

AËDES PACIFICENSIS Hearle, Can. Ent., lix, 101, 1927.

Female—Proboscis moderate, uniform black. Occiput black-scaled, whitish on the sides. Mesonotum broadly brown-scaled in the middle, gray around the sides and posteriorly, the colors confused and blended, often showing a pair of whitish spots centrally; pleuræ and coxæ with creamy-white scales. Abdomen black with broad basal segmental whitish bands, widening a little on the sides; venter pale-scaled. Legs black, but with extensive mixture of whitish scales, appearing gray. Wings with the scaling heavy and coarse, forming spots at the base of third vein and forks of second and fourth.

Male—Coloration of female. Hypopygium: Side-piece rather long and narrow, rounded at tip. Apical lobe small, conical, with a few very fine setæ outwardly directed; basal lobe conically produced, small, with a row of long setæ, the marginal one spine-like. Claspette with long, slender, curved stem, the filament long, not as long as the stem, roundedly angularly widened on the outer side, sickle-shaped. Clasper large, slightly swollen except toward tip, with long terminal spine. Tenth sternites with the tip compressed, thickened, and hooked. Ninth tergites small, as long as wide, bearing about seven long spines.

Larva—Unknown.

Discovery Island, Strait of Juan de Fuca, British Columbia.

This form is scarcely distinguishable from *cataphylla;* but the peculiar habitat indicates its distinctness, a low rocky wind-swept island being seemingly wholly unfitted for the species mentioned.

AËDES (OCHLEROTATUS) NIPHADOPSIS Dyar and Knab

AËDES NIPHADOPSIS Dyar and Knab, Ins. Ins. Mens., v, 166, 1918.
Aëdes niphadopsis Dyar, Ins. Ins. Mens., vii, 138, 1920.
Aëdes (Ochlerotatus) niphadopsis Dyar, Ins. Ins. Mens., x, 8, 1922.
Aëdes (Heteronycha) niphadopsis Dyar, Proc. U. S. Nat. Mus., lxii, 65, 1922.

Female—Proboscis moderate, black with white scales intermixed. Occiput with mixed whitish and reddish brown scales. Mesonotum marked with brown scales centrally, whitish around the sides, two narrow black lines and posterior half lines, with often a little white spot on either side of the middle, the pattern of *impiger* and *cataphylla,* but mixed, and especially in flown specimens, presenting merely a mixture of gray and brown; pleuræ and coxæ with grayish white scales. Abdomen black-scaled, the segments with broad basal whitish bands and a median stripe, reducing the black to quadrate spots or largely obliterating it. The marking is very variable, the

median stripe not always present. The venter grayish white-scaled with broken or reduced median stripe. Wings with many white scales, the black dominant on costa, subcosta, third, fourth, fifth and sixth veins.

Male—Coloration of the female. The palpi have many white scales, though the long terminal hairs are black. Hypopygium (Plate XLIV, Fig. 145): Side-piece rather long, tip rounded; apical lobe small, conical, bare or with a few outwardly directed small setæ; basal lobe small and low, the setæ on it not differentiated from those on the inner side of the side-piece, the marginal one spine-like; some short fine ones on upper side of lobe. Claspette with moderate slender stem, the filament long and narrowly sickle-shaped, longer than the stem. Clasper large, thickened somewhat, except on apical portion, with long terminal spine. Tenth sternites narrow outwardly, thickened and hooked. Ninth tergites quadrate, small, each with eight to ten stiff, short, pointed setæ.

Larva (Plate XLIV, Fig. 145)—Head rounded, bulging at the sides; antennæ uniform, rather small, a tuft near the middle. Head-hairs single, occasionally double, rarely the upper triple; anteantennal tuft more numerous. Lateral comb of the eighth segment of about twelve scales in irregular double row, each scale with central spinule. Air-tube about two and a half times as long as wide; pecten of few teeth, the last one often detached but as often not, followed by a six-haired tuft. Anal segment with the dorsal plate small, not reaching beyond the middle of the side; ventral brush posterior, with small tuft preceding the barred area. Dorsal tuft a long hair and brush on each side; lateral hair single, not very small. Anal gills small, spherical.

Eastern shore of Great Salt Lake, Utah.

The larvæ occur early in spring in pools filled with mineral matter from the mineral springs along the lake shore. The pools found were ordinary spring ground-pools, but the ground was impregnated with mineral matter.

This derivative of *impiger*, adapted to a desert dress, is very local, having been found only in the vicinity of Salt Lake City, Garfield, and Fort Douglas.

AËDES (OCHLEROTATUS) COMMUNIS (DeGeer)

CULEX COMMUNIS DeGeer, Mem. des Ins., vi, plate 17, figs. 2 and 5, 1776.
CULEX NEMOROSUS Meigen, Syst. Beschr., bck. Eur. Zweifl. Ins., i, 4, 1818.
AËDES OBSCURUS Meigen, Abbild. Zweifl. Ins., plate ii, f. 2, 1830.
CULEX LAZARENSIS Felt and Young, Science, n. s., xxx, 312, 1904.
CULEX BOREALIS Ludlow, Can. Ent., xliii, 178, 1911.
CULICADA NEMOROSA DIPLOLINEATA Schneider, Verh. Nat. Ver. Bonn., lxx, 37, 1913.
Aëdes communis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 368, iv, 1917.
Aëdes lazarensis and *borealis* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 733 and 1041, 1917.
AËDES TAHOENSIS Dyar, Ins. Ins. Mens., iv, 82, 1917.
Aëdes tahoensis Dyar, Ins. Ins. Mens., v, 11, 1917.
AËDES ALTIUSCULUS Dyar, Ins. Ins. Mens., v, 100, 1917.
Aëdes (Ochlerotatus) lazarensis, Dyar, Ins. Ins. Mens., vi, 78, 1918.
Aëdes lazarensis Dyar, Ins. Ins. Mens., vii, 17, 1919.
AËDES (HETERONYCHA) MASAMÆ Dyar, Ins. Ins. Mens., viii, 166, 1920.
Aëdes lazarensis Dyar, Ins. Ins. Mens., viii, 5, 1920.
Aëdes (Heteronycha) tahoensis Dyar, Ins. Ins. Mens., viii, 165, 1920.
Aëdes (Heteronycha) lazarensis Dyar, Ins. Ins. Mens., viii, 105, 1920.
Aëdes lazarensis Dyar, Ins. Ins. Mens., ix, plate 1, fig. 1, 1921.

Aëdes (Ochlerotatus) communis Edwards, Bull. Ent. Res., xii, 314, 1921.
Aëdes (Heteronycha) lazarensis Dyar, Trans. Roy. Can. Inst., xiii, pt. 1, 98, 1921.
OCHLEROTATUS PALMENI Edwards, Ent. Tidskr, 52, 1921.
Aëdes (Heteronycha) lazarensis, altiusculus, masamæ, and *tahoensis,* Dyar, Proc. U. S. Nat. Mus., lxii, 65, 66, and 67, 1922.
Aëdes (Ochlerotatus) lazarensis, borealis, altiusculus, masamæ, Dyar, Ins. Ins. Mens., x, 4, 5, and 6, 1922.
Aëdes communis lazarensis Dyar, Ins. Ins. Mens., x, 85, 1922.
Aëdes communis Dyar, Ins. Ins. Mens., xi, 42, 1923.
Aëdes communis Dyar, Ins. Ins. Mens., xii, 43, 1924.
Aëdes (Ochlerotatus) communis tahoensis Freeborn, Mosq. of Calif., 382, 1926.

Female—Proboscis rather long, uniform, black. Occiput with gray or yellow scales, a more or less distinct black spot on each side and whitish one below. Mesonotum typically with dull yellow scales, two blackish brown lines reaching back two-thirds and posterior half lines. The coloration is, however, very variable; the disk may be more or less overspread with brown, sometimes resembling *intrudens,* except that there is an edging of paler scales, the yellow may be replaced by gray, etc. Pleuræ and coxæ with grayish white scales. Abdomen black with basal segmental white bands; venter whitish gray-scaled, the segments more or less distinctly bordered with black at their tips. Legs black. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate XLV, Fig. 146): Side-piece stout, rather long, rounded at tip; apical lobe rather large, full, rounded, with a chitinized cap at tip bearing several stout, short setæ; when the lobe is retracted these point inward, but when fully expanded, outward; basal lobe small, little elevated, bearing some fine hairs, several stout, sometimes curved ones and a long stout spine. Claspette with very long somewhat sinuate stem, the filament broader than it, ribbed, rather long and a little widened on the outer side. Clasper moderately large, slightly swollen except on outer portion, with long terminal spine. Tenth sternites somewhat compressed at tip, thickened and slightly hooked at tip. Ninth tergites longer than broad with about five irregularly inserted spines.

Larva (Plate XLV, Fig. 146)—Head rounded, bulging at the sides; antennæ rather long, spinulated, a tuft near the middle. Head-hairs single, the anteantennal tuft multiple. Lateral comb of the eighth segment of some twenty-five scales in a patch three rows deep. Air-tube three times as long as wide, the pecten not reaching the middle, followed by a five-haired tuft. Anal segment with the dorsal plate reaching below the middle of the side; ventral brush with tufts preceding the barred area. Dorsal tuft a long hair and six-haired brush on each side; lateral hair single. Anal gills longer than the segment, pointed.

North Europe and Asia, forested Canadian region, and northern tier of the United States from the Atlantic to the Rockies; Rocky Mountains from Colorado to the Yukon Valley; mountains of Washington, Oregon, and California.

The larvæ occur in the early spring pools left from the melted snows. The development is about the mean in speed, not so fast as *impiger* and *intrudens,* nor so slow as *pionips* and *pullatus.* The adults are abundant in forest until July. They do not leave the shade, but will bite persons entering their domain by day or night, though their attack is much fiercer just after dark. Later in the evening they are less aggressive. This is always by far the most abundant of the black-legged forest mosquitoes wherever it occurs, thus justifying its name.

The species divides into a number of local forms in the same manner as *punctor;* but here no marked larval or other differences appear, and consequently I have classified the forms as races.

Communis communis is European.

Communis lazarensis is similar to the European form, and perhaps should not be racially separated. It is the form occurring throughout Canada, the northern United States, and the Rocky Mountains.

Communis borealis—From the Yukon Valley; the ground of mesonotum is generally whitish rather than yellowish, the markings extremely variable. It is doubtfully separable from *communis lazarensis.*

Communis altiusculus—A diminutive form from the mountains of Washington, "Indian Henry's" on Mount Rainier. The coloration is quite normal.

Communis masamæ is found on the cinder slopes of Crater Lake, Oregon, The melting snow-water is scant and transient and breeding conditions peculiar. The adults follow up over the unmelted snow-banks in a characteristic manner. Their coloration is rather distinctive, the mesonotum being gray with central brown area.

Communis tahoensis occurs in the mountains of California. The larvæ frequent large solitary though ultimately transient pools, near the sources of streams, and occur in large numbers and without admixture of other species in such locations. The eggs hatch before the ice is gone, possibly even in the fall after rain and snow have filled the pools. Pools found by me near Truckee, California, among continuous snow-banks, but which had thawed out at one end, contained half-grown larvæ. The mesonotum is gray with the usual lines, often overspread with brown, but not so constantly as in *masamæ.*

AËDES (OCHLEROTATUS) PROLIXUS Dyar

AËDES PROLIXUS Dyar, Ins. Ins. Mens., x, 2, 1922.
Aëdes (Ochlerotatus) prolixus Dyar, Ins. Ins. Mens., x, 3, 1922.
Aëdes (Heteronycha) prolixus Dyar, Proc. U. S. Nat. Mus., lxii, 69, 1922.

Female—Proboscis moderate, uniform, black. Occiput with dull yellow scales, becoming brown behind. Mesonotum with dull yellow or whitish scales, with two narrow approximate dark brown lines, sometimes nearly fused, running back three-fourths; posterior half lines weak or absent. The marking closely resembles that of the normal form of *punctor.* Abdomen black with dull whitish basal segmental bands, incised in the middle; venter yellowish gray. Legs black. Wing-scales narrow, dark.

Male—Coloration of the female. Hypopygium: Side-piece stout, rather long, rounded at tip; apical lobe rather large, full, rounded, with a chitinous cap at tip bearing several stout short setæ; basal lobe small, little elevated, bearing some fine hairs, a few setæ, and a large, stout spine. Claspette with very long, somewhat sinuate stem, the filament broader than it, ribbed, rather long and a little widened on the outer side. Clasper moderately large, slightly swollen except on outer portion, with long terminal spine. Tenth sternites somewhat compressed at tip, thickened and slightly hooked. Ninth tergites longer than broad, with about five irregularly inserted spines.

Larva—Unknown.

Coastal region of Alaska above the barrier islands.

This should probably be classified as another race of *communis;* but as the larva is unknown, I let it stand as a species, pending further information.

AËDES (OCHLEROTATUS) PEARYI Dyar and Shannon

AËDES PEARYI Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 78, 1925.

Female—Proboscis rather long, slender, uniform, black. Occiput with brown scales, a black patch on each side and a few white scales below. Mesonotum with brown scales, intermixed with yellow on the sides and antescutellar space, with two black lines and posterior half lines, all narrow and not contrasted; pleuræ and coxæ with yellowish white scales. Abdomen black, with broad basal segmental yellowish white bands; venter yellowish white-scaled, the segments, especially posteriorly, with more or less developed apical black bands. Legs black with light bronzy luster. Wing-scales narrow, all dark.

Male—Unknown.

Larva—Unknown.

Labrador.

The specimens before me are large. I think it is a northern race of *communis;* but until more data are at hand, I leave it the specific status.

While this is in press, I have received through Dr. Paul Bartsch a large number of unbred larvæ taken from a mossy pool along the Matamek River, Gulf of St. Lawrence, by the Amory-Bowman Expedition. Two species of larvæ are present, both of the *communis* group, but rather distinct from other known forms. It is tempting to surmise that the larger one may be that of *pearyi,* the smaller that of *labradoriensis,* in which case the latter should not be placed in the *punctor* group as I here do; but nothing certain can be said until adults have been obtained.

AËDES (OCHLEROTATUS) PIONIPS Dyar

AËDES PIONIPS Dyar, Ins. Ins. Mens., vii, 19, 1919.
Aëdes pionips Dyar, Ins. Ins. Mens., viii, 7, 1920.
Aëdes (Ochlerotatus) communis Edwards (in part, not DeGeer), Bull. Ent. Res., xii, 314, 1921.
Aëdes (Heteronycha) pionips Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 99, 1921.
Aëdes (Heteronycha) pionips Dyar, Proc. U. S. Nat. Mus., lxii, 68, 1922.
Aëdes (Ochlerotatus) pionips Dyar, Ins. Ins. Mens., x, 4, 1922.
Aëdes pionips, Dyar, Ins. Ins. Mens., x, 70, 1922.
Aëdes pionips Dyar, Ins. Ins. Mens., x, 85, 1922.
Aëdes pionips Dyar, Ins. Ins. Mens., xi, 42, 1923.
Aëdes pionips Dyar, Ins. Ins. Mens., xii, 43, 1924.

Female—Proboscis rather long, uniform, black. Occiput with pale yellowish scales, a dark patch on each side and some white scales below. Mesonotum dull yellow-scaled, rarely whitish, the two dark brown lines and posterior half lines broad and sharply drawn, not extremely variable. Abdomen black, with narrow basal segmental white bands; venter grayish white, the segments, especially posteriorly, with more or less developed black apical bands. Legs black. Wing-scales narrow, dark.

Male—Coloration of the female. Hypopygium (Plate XLV, Fig. 147): Side-piece stout, long, rounded at tip; apical lobe large, rounded, with a group of long setæ at the tip, which at a certain stage of retraction of the lobe point outward, in other mounts directed inward; basal lobe a small elevation with a few rather short setæ and a strong spine. Claspette with long slender stem, a little enlarged basally, slightly hirsute and bearing a seta; filament long, ribbed, narrowly expanded on one margin, sickle-shaped.

Clasper moderate, a little narrower on the outer portion, with long terminal spine. Tenth sternites narrowed outwardly, thickened on one margin at tip, with hook and slight additional dentition. Ninth tergites quadrate, with five terminal spines.

Larva (Plate XLV, Fig. 147)—Head rounded, bulging at the eyes; antennæ long, not as long as the head, spined, a tuft near the middle. Head-hairs upper in five, lower in four, anteantennal tuft multiple. Lateral comb of the eighth segment of some seventy-five scales in a large patch, the single scale evenly fringed with spinules. Air-tube about two and a half times as long as wide, the pecten not reaching the middle, followed by an eight-haired tuft. Anal segment about as long as wide, the plate reaching below the middle of the side, notched on the margin; ventral brush with long-stemmed tufts, small tufts preceding the barred area; dorsal tuft a hair and large brush on each side. Anal gills longer than the segment, pointed.

Forested Canadian Zone from Ontario to the Rockies; Rocky Mountains from Colorado to the Yukon Valley; river valleys of British Columbia and Alaska within the barrier islands; central Alaska.

The larvæ occur in early spring pools, preferably large ones which dry out slowly. The larvæ linger for a long time, only *pullatus* being as late as these. Where the two occur together, as is frequently the case, the *communis* are all out of the pools weeks before the *pionips* have matured.

This is a derivative species of *communis*, but quite distinct. It has no representative in the Californian mountains.

AËDES (OCHLEROTATUS) NEARCTICUS Dyar

AËDES NEARCTICUS Dyar, Rept. Can. Arct. Exp., iii, pt. C, 32, 1919.
AËDES (OCHLEROTATUS) PARVULUS Edwards, Bull. Ent. Res., iii, 314, 1921.
Aëdes (Heteronycha) nearcticus Dyar, Trans. Roy. Inst., Toronto, xiii, pt. 1, 111, 1921.
Aëdes (Heteronycha) nearcticus Dyar, U. S. Nat. Mus., lxii, 84, 1922.
Aëdes nearcticus Dyar, Ins. Ins. Mens., x, 74, 1922.
Aëdes alpinus Twinn (in part, not Linnæus), Can. Ent., lix, 48, 1927.
Aëdes nearcticus Hearle, Can. Ent., lix, 61, 1927.
Aëdes nearcticus Dyar, Ins. Ins. Mens., xiv, 190, 1927.

Female—Proboscis rather long, uniform, dark brown. Occiput and mesonotum with dark brown scales with a bronzy tint, unmarked or with a pair of lighter spots centrally; setæ long, black, not conspicuous ventrally; pleuræ and coxæ with brownish and pale scales. Abdomen black, with basal segmental white bands; venter gray, the apices of the segments more or less distinctly black-banded. Legs black, femora and tibiæ sprinkled with pale scales. Wing-scales narrow, dark.

Male—Coloration of the female. The palpi are black. Thorax and abdomen very hairy, both above and below. Hypopygium (Plate XLV, Fig. 148): Side-piece rather long, rounded at tip; apical lobe small, rounded, continued obsoletely to middle; a few fine setæ at the inner tip; basal lobe triangularly prominent, large but low, with a row of rather long setæ, the marginal one thickest and sometimes almost spine-like. Claspette with rather long curved stem, a little narrower outwardly; filament long, not as long as the stem, the outer margin widely angularly expanded. Clasper moderate, uniform, narrowed at extreme tip with long terminal spine. Tenth sternites narrow, one margin and the tip thickened, with laterally directed tooth. Ninth tergites small, conical, bearing about five spines irregularly inserted. Mesosome membranous, the tip with two weak incurved horns.

Larva (Plate XLV, Fig. 148)—Head rounded, bulging at the sides. Antennæ rather small, slender, a tuft near the middle. Head-hairs single, anteantennal tuft in two to four. Lateral comb of the eighth segment of ten to fourteen scales. Air-tube about two and a half times as long as wide; pecten on the basal third, followed by a three to five haired tuft. Anal segment with the plate reaching well down the sides; ventral brush posterior, but with small tufts preceding. Dorsal tuft a long hair and three- to four-haired brush; lateral hair rudimentary. Anal gills long, roundedly pointed.

Arctic regions; Arctic coast of Canadian Northwest Territory, Rocky Mountains to Banff, Alberta, and the Glacier National Park, Montana. Banff, Alberta, at 6,000 feet, June 27, 1924 (E. Hearle); Many Glacier, Glacier National Park, at 5,000 feet, June 5, 1926 (H. G. Dyar).

This species appears to not extend farther south along the Rockies than Montana. At high altitudes in Wyoming, the following form *(cacothius)* was encountered, while in Colorado *punctodes* was met with. The present species *(nearcticus)* breeds with *communis* and *pullatus,* but at higher elevations the admixture of these species in the pools is less. *Nearcticus* adults occur in the higher passes in large numbers in midsummer. The distribution is not downward.

AËDES (OCHLEROTATUS) CACOTHIUS Dyar

AËDES CACOTHIUS Dyar, Ins. Ins. Mens., xi, 44, 1923.

Female—Proboscis rather long and slender, black. Occiput with gray-brown scales, a black spot at the side and white scales below. Mesonotum dark brown in the middle, gray around the margins of the disk, the ordinary black lines absent or faint and narrow; pleuræ and coxæ with white scales. Abdomen black, with narrow basal segmental white bands, widening on the sides, often narrowly cleft on the dorsal line; venter dark gray, the segments more or less distinctly black apically. Legs black, tibiæ and first tarsal joint considerably whitish-scaled below. Wing-scales narrow, all dark or nearly so, the third vein with a little black speck at its base.

Male—Unknown.

Larva—Unknown.

Wyoming at 8,000 feet. Shoshone Point, Yellowstone National Park, Wyoming, June 27, 1922 (H. G. Dyar).

Females only are known of this form. It is a small species and greatly resembles *ventrovittis,* but owing to the distribution it would seem more probably to be a member of the *communis* group derived from *nearcticus,* and I have so placed it, tentatively.

Group TRICHURUS

AËDES (OCHLEROTATUS) TRICHURUS (Dyar)

CULEX TRICHURUS Dyar, Journ. N. Y. Ent. Soc., xii, 170, 244, 1904.
CULEX CINEREOBOREALIS Felt and Young, Science, n. s., xxx, 312, 1904.
AËDES PAGETONOTUM Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 253, 1909.
Aëdes trichurus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1917.
AËDES POLIOCHROS Dyar, Ins. Ins. Mens., vii, 37, 1919.
Aëdes trichurus Dyar, Ins. Ins. Mens., vii, 35, 1919.
Aëdes (Heteronycha) trichurus Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 110, 1921.
Aëdes (Heteronycha) trichurus and *cinereoborealis* Dyar, Proc. U. S. Nat. Mus., lxii, 1922.
Aëdes trichurus Dyar, Ins. Ins. Mens., x, 86, 1922.
Aëdes cinereoborealis Dyar, Ins. Ins. Mens., xi, 56, 1923.

Female—Proboscis rather long and slender, black. Occiput with light gray scales, more strongly intermixed with blackish on the sides. Mesonotum broadly brown-scaled in the middle, edged with light gray on the sides and more or less sprinkled with gray throughout. The brown patch varies in size, and is notched in the middle of the side by the gray area; pleuræ and coxæ with pale gray scales. Abdomen black, with basal segmental white bands widening on the sides; venter whitish, the tips of the segments narrowly black-banded. Legs black, the tibiæ and first tarsal joint more or less sprinkled with pale scales below. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate XLVI, Fig. 149): Side-piece rather large, conical, rounded at tip; apical lobe small, conical, with a number of long hairs on the outer aspect directed outwardly; basal lobe double, a low cone bearing long hairs which are similar and not graded, and a smaller narrower cone which bears short but unmodified hairs. Claspette stem very long and sinuate, swollen just before the tip; filament short, swollen, pointed, with a series of concentric ridges. Clasper rather stout, curved, with long terminal spine. Tenth sternites narrow, thickened, especially at tip and with laterally directed tooth. Ninth tergites conical, spined all over the surface with about ten short spines. Mesosome abruptly conical with small central point.

Larva (Plate XLVI, Fig. 149)—Head rounded, bulging on the sides. Antennæ moderate, spined, a tuft near the middle. Head-hairs upper in three, lower single, anteantennal tuft multiple. Lateral comb of the eighth segment of fifteen or more scales in an irregular double row. Air-tube three times as long as wide; pecten reaching one-third, followed by widely spaced detached teeth to two-thirds, the tuft before the middle; dorsally five hair-tufts on each side. Anal segment with the plate reaching well down the side, the ventral brush posterior, but with small tufts preceding the barred area. Dorsal tuft a long hair and brush on each side; lateral hair small, double. Anal gills somewhat longer than the segment, pointed.

Southern Canada and northern United States from the Atlantic to the Rockies.

The larvæ live in early spring pools resulting from melting snow, and are most common in the edges of grassy marshes with *excrucians* and *fitchii*. The species is characteristic of the southern edge of the Canadian Zone, and is not found in the more northern forests.

AËDES (OCHLEROTATUS) THIBAULTI Dyar and Knab

AËDES THIBAULTI Dyar and Knab, Proc. Ent. Soc. Wash., xi, 174, 1910.
Aëdes (Heteronycha) thibaulti Dyar, Proc. U. S. Nat. Mus., lxii, 82, 1922.
Aëdes thibaulti Bradley, Ins. Ins. Mens., xiii, 89, 1925.

Female—Proboscis moderate, uniform, black. Occiput with yellow and black scales in the middle, a white patch on each side. Mesonotum light yellow-scaled on the sides anteriorly, the usual marking of two dark lines and posterior half lines conjoined into one large dark brown patch, leaving the anterior angles and scutellum alone yellow; pleuræ and coxæ with white scales. Abdomen black, the basal abdominal whitish bands widely broken centrally, except at base, leaving quadrate lateral patches; venter yellowish white, the segments black-banded apically. Legs black. Wing-scales narrow, dark.

Male—Coloration of the female. Hypopygium (Plate XLVI, Fig. 150): Side-piece rather long, stout, rounded at tip; apical lobe low conical, continued along the side-piece, bearing very short reversed setæ; basal lobe quadrate, bearing a large number of long uniform hairs on its tip. Claspette stem short, stout, with a hirsute branch beyond the middle; filament inserted on a main shorter part of the stem, broadly expanded, the lower part forming a rounded lobe, the upper part with a retrose hook on the margin. Clasper large, curved, narrowed at tip, with long terminal spine. Tenth sternites narrow on margin and the tip thickened, smooth. Ninth tergites small, with about six fine setæ. Mesosome conical, contracted mesially, the tips when appressed forming a small central point.

Larva (Plate XLVI, Fig. 150)—Head rounded, bulging at the sides. Antennæ moderate, spined, a tuft near the middle. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube three times as long as wide, the pecten reaching nearly to the middle, followed by a six-haired tuft. Anal segment longer than wide, the dorsal plate reaching well down the sides; ventral brush posterior, but preceded by small tufts before the barred area. Dorsal tuft a long hair and brush on each side; lateral hair single. Anal gills about as long as the segment, tapered.

Georgia, Mississippi, Louisiana, Arkansas, Missouri.

The larvæ occur in spring ground-pools. The species is rare, and the adults disappear early in the season.

Group DORSALIS

AËDES (OCHLEROTATUS) CAMPESTRIS Dyar and Knab

AËDES CAMPESTRIS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 213, 1907.
Aëdes campestris Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1917.
Aëdes campestris Dyar, Ins. Ins. Mens., v, 111, 1917.
AËDES CALLITHOTRYS Dyar, Ins. Ins. Mens., viii, 16, 1920.
Aëdes campestris Dyar, Ins. Ins. Mens., viii, 120, 1920.
Aëdes (Heteronycha) campestris Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 104, 1921.
Aëdes (Heteronycha) campestris Dyar, Proc. U. S. Nat. Mus., lxii, 70, 1922.

Female—Proboscis moderate, slender, black. Occiput with whitish yellow scales, shading to brown behind. Mesonotum with whitish yellow scales, brown in the middle and narrowly on the sides, the colors blended, pleuræ and coxæ with grayish white scales. Abdomen black with median dorsal stripe and narrow basal segmental bands of grayish white, the latter widening on the sides, reducing the black to pairs of elongate marks or wholly suffusing the dorsum with white; venter yellowish white-scaled. Legs gray, the tarsi blackish, with dull white rings at the joints, involving both ends of them. Wing-scales narrow, yellowish white with more or less black ones regularly interspersed, the veins uniformly colored.

Male—Coloration of the female. Hypopygium (Plate XLVII, Fig. 152): Side-piece large, rounded at tip; apical lobe slight, its setæ unmodified; basal lobe quadrately elevated but low, with many rather long stiff setæ which are all alike. Claspette with short, rather stout stem with two setæ within near tip; filament not as long as the stem, sickle-shaped, thick, and infuscated. Clasper large, curved a little, narrowed at tip, with long terminal spine. Tenth sternites narrow outwardly, thickened at tip with laterally directed tooth. Ninth tergites low with about six stiff spines.

Larva (Plate XLVII, Fig. 152)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs single, ante-antennal tuft multiple. Lateral comb of the eighth segment of many scales in a triangular patch, the single scale broad, feathered, but the median spine is shorter. Air-tube about two and a half times as long as wide, the pecten running beyond the middle, the last teeth stouter and the terminal one shortly detached, followed by a hair-tuft. Anal segment as long as wide, the plate reaching the middle of the sides; ventral brush large, with small tufts preceding nearly to the base of the segment. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills very small.

Minnesota, North Dakota, Saskatchewan, Utah, eastern Washington, eastern British Columbia, Yukon Territory, and an island in Hudson's Bay (Charlton Island, James Bay).

The species occurs with *dorsalis* in the dry but not too arid western plains, the larvæ in the early spring or irrigation pools which are generally alkaline or salt. In the north, as in the upper Yukon Valley, and at James Bay it occurs without *dorsalis*. It is a rarer species than its associate, larger and paler, and has a peculiar northern distribution. It never occurs in seacoast pools as *dorsalis* habitually does.

AËDES (OCHLEROTATUS) DORSALIS (Meigen)

CULEX DORSALIS Meigen, Syst. Bes. Bek. Eur. Zwei. Ins., vi, 242, 1830.
CULEX MACULIVENTRIS Macquart, Dipt. Exot., Suppl. 1, 7, 1846.
CULEX CURRIEI Coquillett, Can. Ent., xxxiii, 259, 1901.
CULEX ONONDAGENSIS Felt, Bull. 79, N. Y. St. Mus., 278, 1904.
AËDES QUAYLEI Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 191, 1906.
CULEX LATIVITTATUS Coquillett, Ent. News, xvii, 109, 1906.
GRABHAMIA MEDIOLINEATA Ludlow, Can. Ent., xxxix, 129, 1907.
Aëdes curriei Dyar, Ins. Ins. Mens., v, 98, 110, 122, 1917.
Aëdes onodagensis and *curriei* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 629 and 634, 1917.
Aëdes curriei Dyar, Ins. Ins. Mens., vii, 37, 1919.
GRABHAMIA BROQUETTII Theobald, Entom., xlvi, 154, 1920.
AËDES GRAHAMI Ludlow, Ins. Ins. Mens., vii, 154, 1920.
Aëdes curriei Dyar, Ins. Ins. Mens., viii, 18, 1920.
Aëdes (Ochlerotatus) dorsalis Edwards, Bull. Ent. Res., xii, 300, 1921.
Aëdes (Heteronycha) curriei Dyar, Tran. Roy. Can. Inst., Toronto, xiii, pt. 1, 103, 1921.
Aëdes (Heteronycha) dorsalis Dyar, Proc. U. S. Nat. Mus., lxii, 69, 1922.
Aëdes dorsalis Dyar, Ins. Ins. Mens., x, 71, 1922.
Aëdes dorsalis Dyar, Ins. Ins. Mens., xi, 43, 1923.
Aëdes dorsalis Dyar, Ins. Ins. Mens., xii, 44, 1924.
Aëdes dorsalis Hearle, Nat. Res. Counc., Rept. No. 17, 58, 1926.
Aëdes (Ochlerotatus) dorsalis Freeborn, Mosq. of Calif., 368, 1926.

Female—Proboscis moderate, uniform, blackish with gray scales. Occiput with whitish scales. Mesonotum with whitish or pale yellow scales, a shaded brown central band and narrow lateral brown margins, the marking very variable in extent and sometimes wanting; pleuræ and coxæ with gray scales. Abdomen black, with basal and apical segmental whitish bands and a median stripe, variable in extent, the black usually reduced to paired squares, sometimes nearly occluded; venter yellowish white. Legs gray, black and white speckled, the tarsi nearly black with dull whitish rings

involving both ends of the joints. Wing-scales black and white, the latter usually predominating; first, third, and fifth veins with more black scales than the others, the third usually remaining black-marked even in very pale specimens.

Male—Coloration of the female. Hypopygium (Plate XLVII, Fig. 153): Side-piece large, rounded at tip; apical lobe low, rounded, running to middle of side-piece, with several stiff and rather long setæ; basal lobe quadrately expanded, with flat top, bearing tubercles and short setæ on the margin and two spines, stout, curved, and rather short. Claspette stem moderate and rather stout, filament shorter than it, narrowly or somewhat widely sickle-shaped and expanded or thickened. Clasper large, narrowed at base and on outer portion, with long terminal spine. Tenth sternites narrow, thickened at tip and with small, laterally directed tooth. Ninth tergites small, with four irregularly inserted spines.

Larva (Plate XLVII, Fig. 153)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs single, ante-antennal tuft multiple. Lateral comb of the eighth segment of some twenty-five scales in an irregular double row. Air-tube nearly three times as long as wide, the pecten not quite reaching the middle, followed by a multiple tuft. Anal segment longer than wide, the plate reaching the middle of the side; ventral brush with small tufts preceding the barred area. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills very small, spherical.

Europe, Asia, North America; especially arid plains of the interior and coastal regions.

The larvæ occur in salty or alkaline pools whenever these become filled with water. It is the dominant species of the western plains throughout southern Canada from Manitoba to the Rockies, the Dakotas, to Utah, Nevada, and California east of the Sierras. It occurs also as a coastal inhabitant of salt pools, frequent on the Pacific coast, rare and local on the Atlantic and Gulf coasts. The adults occur in large numbers and are sufficiently annoying out of doors, especially just after dark; but they do not enter houses.

AËDES (OCHLEROTATUS) MELANIMON Dyar

AËDES MELANIMON Dyar, Ins. Ins. Mens., xii, 126, 1924.
Aëdes dorsalis Freeborn (in part not Meigen), Mosq. of Calif., 368, 1926.
Aëdes melanimon Dyar, Ins. Ins. Mens., xiv, 1927.

Female—Proboscis moderate, uniform, black. Occiput with grayish white scales, a brown patch on each side. Mesonotum with grayish white scales; a broad, dark brown band in the middle obsoletely divided into three lines by gray scales and rather broad brown side-stripes, supplemented by posterior half lines; pleuræ and coxæ with white scales. Abdomen black with basal and apical segmental narrow white bands, widening on the sides, and a more or less developed median line; venter grayish white with broken median black line or row of dashes. Legs black, largely sprinkled with white scales, the tarsi mostly black with pale whitish rings involving both ends of the joints. Wing-scales dark with only small admixture of white ones, the veins appearing all dark and uniform.

Male—Coloration of the female. Hypopygium (Plate XLVII, Fig. 154): Side-piece large, rounded at tip; apical lobe large, conical, running to below middle of side-piece, a broad chitinization on the inner side bearing several

stiff and rather long setæ; basal lobe roundedly bulbous, with only minute setæ basally; on the outer aspect several setæ and two spines, one long and curled, the other short and spine-like. Claspette stem moderate, slender; claspette filament very large, as long as the stem, broadly sickle-shaped, one margin broadly expanded. Clasper large, narrowed at base and on outer portion, with long terminal spine. Tenth sternites narrow, thickened at tip and with small, laterally directed tooth. Ninth tergites small, with four irregularly inserted spines.

Larva (Plate XLVII, Fig. 154)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs single, ante-antennal tuft multiple. Lateral comb of the eighth segment of some twenty-five scales in an irregular double row. Air-tube nearly three times as long as wide, the pecten not quite reaching the middle, followed by a multiple tuft. Anal segment longer than wide, the plate reaching the middle of the side; ventral brush with small tufts preceding the barred area. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills very small, spherical.

California (Bakersfield).

The larvæ occur in temporary pools when filled by the very occasional rains of the region. This form is as yet known only from Bakersfield, where it is not accompanied by *dorsalis*. Freeborn endeavored to prove this a variety of *dorsalis;* but the male hypopygium differs too much to justify this conclusion. It is curious that the distribution should be so limited, but it may be that the form is widespread on the Mexican plateau, the fauna of which is practically unknown. Another species found by Badger at Bakersfield and otherwise unknown in the United States *(Culex federalis)* occurs also in the Federal District of Mexico City. Specimens which I have referred to as possible *melanimon* from Benicia Arsenal are probably nothing but dark *dorsalis*.

AËDES (OCHLEROTATUS) CANADENSIS (Theobald)

CULEX CANADENSIS Theobald, Mon. Culic., ii, 3, 1901.
CULEX NIVITARSIS Coquillett, Proc. Ent. Soc. Wash., vi, 168, 1904.
Aëdes canadensis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 648, 1917.
Aëdes canadensis Dyar, Ins. Ins. Mens., v, 103, 112, 1917.
Aëdes canadensis Dyar, Ins. Ins. Mens., vii, 28, 1919.
Aëdes canadensis Dyar, Ins. Ins. Mens., viii, 18, 1920.
Aëdes (Heteronycha) canadensis Dyar, Trans. Roy. Can. Inst., Toronto, xiii, Pt. 1, 102, 1921.
Aëdes (Heteronycha) canadensis Dyar, Proc. U. S. Nat. Mus., lxii, 71, 1922.
Aëdes canadensis Dyar, Ins. Ins. Mens., x, 87, 1922.
Aëdes canadensis Dyar, Ins. Ins. Mens., xi, 43, 1923.
Aëdes canadensis Hearle, Nat. Res. Counc., Rept. No. 17, 53, 1926.

Female—Proboscis moderate, uniform, black. Occiput with dull yellow scales, shading to brown behind. Mesonotum reddish brown-scaled, the sides narrowly or somewhat broadly pale yellow, indenting the brown laterally; more or less developed double longitudinal dark brown line; pleuræ and coxæ with white scales. Abdomen black, without markings dorsally, laterally with triangular basal segmental white spots; venter yellowish white, the apices of the segments more or less distinctly blackish. Legs black, the

tarsi with broad white rings involving both ends of the joints. Wing-scales narrow, dark.

Male—Coloration of the female. Hypopygium (Plate XLVIII, Fig. 155): Side-piece stout, rounded at tip; apical lobe large, low, rounded, bearing dense, rather long, blade-shaped setæ from distinct tubercles; basal lobe large, quadrately expanded, with many tubercles and fine setæ, the setæ dense on the inner angle but without a spine. Claspette with moderate straight stem, the filament narrow, linear, not as long as the stem. Clasper large, a little swollen before the middle, with long terminal spine. Tenth sternites narrow, thickened outwardly, with rounded, slightly bent tooth. Ninth tergites small, conical, with about five irregularly inserted spines.

Larva (Plate XLVIII, Fig. 155)—Head rounded, bulging at the sides; antennæ moderate, spined, with a tuft near the middle. Head-hairs, upper about seven, lower four. Lateral comb of the eighth segment of many scales in a patch three rows deep. Air-tube three times as long as wide, the pecten not reaching the middle, followed by a four-haired tuft. Anal segment longer than wide, the plate below the middle of the side; ventral brush with small tufts preceding the barred area; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills shorter than the segment, pointed.

Southern Canada, New England to Montana, Atlantic States to Florida.

The larvæ live in temporary ground-pools, in the north hatching whenever these are filled by rain, in the south a single-brooded early spring species. The species occurs where there is timber of some sort, giving shade. It does not occur on the open plains nor in the Canadian Zone proper, in spite of its name. Where occurring with the other forest species the warmer pools are chosen, and in dry seasons, owing to lateness in development, none may succeed in emerging. In this respect the habits are much as with *cinereus* and *vexans*, with which species *canadensis* often occurs.

Group FLAVESCENS

AËDES (OCHLEROTATUS) EXCRUCIANS (Walker)

CULEX EXCRUCIANS Walker, Ins. Saund., 429, 1856.
CULEX ABFITCHII Felt, Bull. 79, N. Y. State Mus., 381, 1904.
CULEX SIPHONALIS Grossbeck, Can. Ent., xxxvi, 332, 1904.
AËDES SANSONI Dyar and Knab, Can. Ent., xli, 102, 1909.
AËDES EUEDES Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., 714, iv, 1917.
Aëdes sansoni, abfitchii, euedes, and *excrucians* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 686, 688, 714, and 1917.
Aëdes euedes Dyar, Ins. Ins. Mens., vi, 78, note, 1918.
Aëdes excrucians Dyar, Ins. Ins. Mens., vii, 25, 1919.
Aëdes excrucians Dyar, Ins. Ins. Mens., viii, 12, 1920.
Aëdes excrucians excrucians Dyar, Ins. Ins. Mens., viii, 109, 1920.
Aëdes (Ochlerotatus) excrucians Edwards, Bull, Ent. Res., xii, 305, 1921.
Aëdes (Heteronycha) excrucians Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 108, 1921.
Aëdes (Heteronycha) excrucians Dyar, Proc. U. S. Nat. Mus., lxii, 72, 1922.
Aëdes excrucians Dyar, Ins. Ins. Mens., x, 87, 1922.
Aëdes excrucians Dyar, Ins. Ins. Mens., xi, 41, 1923.
Aëdes excrucians Dyar, Ins. Ins. Mens., xii, 42, 1924.

Female—Proboscis rather long, uniform, black. Occiput with yellowish white scales, a more or less distinct brown patch on each side, the marking variable. Mesonotum with brown and white scales, mottled and varied, without distinct pattern; pleuræ and coxæ with white scales. Abdomen black, with basal segmental white bands which widen to quadrate patches on the sides; venter whitish-scaled, with median segmental blackish blotches. Legs black with white scales intermixed on femora and tibiæ, tarsi mostly black, the segments with white bands at their bases, broad and distinct on the hind legs. Wing-scales black with more or less admixture of white ones along costa.

Male—Coloration of the female. Hypopygium (Plate XLVIII, Fig. 156): Side-piece rather large, rounded at tip; apical lobe large, rounded, with rather long blade-like setæ pointing inward and basally; basal lobe absent, represented by a broad rugose area that runs up to the base of the apical lobe, of tubercles in transverse ridges, each with a small curved seta. Claspette with long, curved stem, a little more slender outwardly; filament long, broadly angularly expanded on one margin, the expansion occurring near its base. Clasper large, swollen centrally, the base and apical portion narrower; a long terminal spine. Tenth sternites narrow, thickened apically and with small laterally directed tooth. Ninth tergites small, conical, with six irregularly inserted rather long spines, about twice as long as the projection of the tergite.

Larva (Plate XLVIII, Fig. 156)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs in twos, anteantennal tuft in five. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube about four times as long as wide, tapering outwardly, the pecten not reaching the middle, the last two teeth widely detached, followed by a five-haired tuft. Anal segment longer than wide, the plate reaching below the middle of the side, the ventral brush with small tufts preceding the barred area nearly to the base; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills about as long as the segment, pointed. The tracheæ in the abdomen are straight and band-shaped.

Canadian Zone and northern United States to the Rockies, south to Colorado and north to the Yukon Valley; also in Europe, apparently the same.

The larvæ occur by preference in the edges of grassy marshes when these are flooded in spring; occasionally also in early woods-pools. Emergence is somewhat late and adults are on the wing most of the summer, frequenting shade. This is a large, conspicuous species.

AËDES (OCHLEROTATUS) ALOPONOTUM Dyar

AËDES ALOPONOTUM Dyar, Ins. Ins. Mens., v, 98, 1917.
Aëdes fletcheri aloponotum Dyar, Ins. Ins. Mens., viii, 112, 1920.
Aëdes (Heteronycha) aloponotum Dyar, Proc. U. S. Nat. Mus., lxii, 75, 1922.
Aëdes riparius (?) aloponotum Dyar, Ins. Ins. Mens., xi, 92, 1923.
Aëdes aloponotum Dyar, Ins. Ins. Mens., xii, 176, 1924.
Aëdes aloponotum Hearle, Nat. Res. Counc., Rept. No. 17, 55, 1926.

Female—Proboscis rather long, uniform, black. Occiput with yellowish white scales, a more or less distinct brown patch on each side, the marking variable. Mesonotum with brown and white scales, mottled and varied without distinct pattern, generally distinctly foxy red; pleuræ and coxæ

with white scales. Abdomen black, with basal segmental white bands which widen to quadrate patches on the sides; venter whitish-scaled, with median segmental blackish blotches. Legs black with white scales intermixed on femora and tibiæ, tarsi mostly black, the segments with white bands at their bases, broad and distinct on the hind legs. Wing-scales black with little or no admixture of white ones along costa, sometimes forming a little aggregation at base of third vein.

Male—Coloration of the female. Hypopygium (Plate XLVIII, Fig. 157): Side-piece rather large, rounded at tip; apical lobe large, rounded, with small fine and weak setæ pointing inward; basal lobe absent, represented by a broad rugose area that runs up to the base of the apical lobe, of tubercles in transverse ridges, each with a small curved seta. Claspette with rather long stem, a little curved and narrowed just before tip; filament moderate, widely expanded on one margin to tip, the expansion arising close to base. Clasper large, swollen centrally, the base and apical portion narrower; a long terminal spine. Tenth sternites narrow, thickened apically with small laterally directed tooth. Ninth tergites small, conical, and with six irregularly inserted rather long spines, over twice as long as the projection of the tergite.

Larva (Plate XLVIII, Fig. 157)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs upper in three, lower in two, anteantennal tuft in six. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube four times as long as wide, tapering outwardly, the pecten not reaching the middle, the last two teeth more or less distinctly detached, followed by a seven-haired tuft. Anal segment longer than wide, the plate reaching below the middle of the side, the ventral brush with small tufts preceding the barred area nearly to the base; dorsal tuft a long hair and brush on each side; lateral hair single. Anal gills longer than the segment, pointed. The tracheæ in the abdomen are straight and band-shaped.

Washington and British Columbia, forested coastal region.

The larvæ occur in cold early spring pools, in the Mount Rainier and Hoodsport regions of Washington and lower Fraser Valley, British Columbia. It represents *excrucians* on the Pacific coast, and might be classified as a race of it, although I prefer the specific status as here designated.

AËDES (OCHLEROTATUS) INCREPITUS Dyar

GRABHAMIA VITTATA Theobald (not Bigot, 1861, not Philippi, 1865), Can. Ent., xxxv, 313, 1903.
AËDES INCREPITUS Dyar, Ins. Ins. Mens., iv, 87, 1916.
Aëdes increpitus Dyar, Ins. Ins. Mens., v, 14, 1917.
Aëdes sansoni Dyar (not Dyar and Knab), Ins. Ins. Mens., vi, 115, 1917.
Aëdes vittata Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 691, 1917.
Aëdes sansoni Cockerell (not Dyar and Knab), Journ. Econ. Ent., xi, 199, 1918.
AËDES MUTATUS Dyar, Ins. Ins. Mens., vii, 24, 1919.
Aëdes increpitus increpitus and *mutatus* Dyar, Ins. Ins. Mens., viii, 111, 1920.
Aëdes (Heteronycha) mutatus and *increpitus* Dyar, Proc. U. S. Nat. Mus., lxii, 73, 1922.
Aëdes increpitus mutatus Dyar, Ins. Ins. Mens., x, 87, 1922.
AËDES HEWITTI Hearle, Can. Ent., lv, 5, 1923.
Aëdes mutatus Dyar, Ins. Ins. Mens., xi, 40, 1923.
Aëdes increpitus hewitti and *mutatus* Dyar, Ins. Ins. Mens., xii, 41 and 42, 1924.
Aëdes mutatus Hearle, Nat. Res. Counc., Rept. No. 17, 59, 1926.
Aëdes (Ochlerotatus) increpitus Freeborn, Mosq. of Calif., 395, 1926.

Female—Proboscis rather long, uniform, black. Occiput with yellowish white scales, a more or less distinct brown patch on each side, the marking variable. Mesonotum with brown and white scales, mottled and varied, without distinct pattern, sometimes with white dots, a pale area laterally; pleuræ and coxæ with white scales. Abdomen black, with basal segmental white bands which widen to quadrate patches on the sides; venter whitish-scaled, with median segmental blackish blotches. Legs black with many white scales intermixed on femora and tibiæ, tarsi mostly black, the segments with white bands at their bases, broad and distinct on the hind legs. Wing-scales black with more or less admixture of white ones along costa.

Male—Coloration of the female. Hypopygium (Plate XLIX, Fig. 158): Side-piece rather large, rounded at tip; apical lobe small, rounded, with a few rather long, fine setæ pointing inward; basal lobe absent, represented by a small rugose area that does not reach to the base of the apical lobe, of tubercles in transverse ridges, each with a small curved seta. Claspette with a moderate curved stem, the filament slender, long, with an angular expansion on one side, which begins about the middle of the filament. Clasper large, slightly swollen centrally, narrow at base and apical portion, with long terminal spine. Tenth sternites tapered outwardly, thickened on one margin and at tip, which is tooth-like and outwardly directed. Ninth tergites small, conical, with about eight fine hairs inserted over the top and inner side.

Larva (Plate XLIX, Fig. 158)—Head rounded, bulging on the sides; antennæ moderate, spined, a tuft near the middle. Upper head-hair in two or three, lower single or double. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube less than three times as long as wide, the pecten not reaching the middle, followed by a three-haired tuft. Anal segment about as long as wide, the plate reaching below the middle of the side; ventral brush posterior, with small tufts preceding the barred area. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills longer than the segment, pointed.

California and Rocky Mountain Region.

The larvæ occur in spring pools in valleys and overflowed edges of lakes, in mountainous areas. Formerly abundant in Yosemite Valley till exterminated by anti-mosquito work.

Three not strongly marked local races appear:

Increpitus increpitus in the mountains of California, both the Sierras and Coast Range. The expansion of the filament of the claspette of the male hypopygium is beyond the middle.

Increpitus mutatus in the valleys of the Rockies from Montana to New Mexico. The expansion of the filament is before the middle.

Increpitus hewitti at the upper reaches of the river valleys in Colorado and British Columbia is small, with dark mesonotum.

AËDES (OCHLEROTATUS) FLAVESCENS (Müller)

Culex flavescens Müller, Faun. Ins. Fried., 87, 1764.
Culex lutescens Fabricius, Syst. Ent., 800, 1775.
Culex variegatus Schrank, Enum. Ins. Austr., 482, 1781.
Culex bipunctatus Robineau-Desvoidy, Mem. Soc. Nat. Hist. Paris, iii, 405, 1827.
Culex flavus Motschulsky, Bull. Soc. Imp. Nat. Mosc., xxxii, 503, 1859.
Culex arcanus Blanchard, Les Moust., 303, 1905.
Culex fletcheri Coquillett, U. S. D. A., Bur. Ent., Tech. Ser. 11, 20, 1906.

Aëdes fletcheri Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., 675, iv, 1917.
Aëdes fletcheri Dyar, Ins. Ins. Mens., vii, 27, 1919.
Aëdes fletcheri Cameron, Agr. Gaz. Can., v, 557, 1918.
Aëdes fletcheri Cameron, Jr. Am. Med. Vet. Assn., liii, 633, 1918.
Aëdes fletcheri Dyar, Ins. Ins. Mens., vii, 27, 1919.
AËDES CYPRIUS Ludlow, Ins. Ins. Mens., vii, 158, 1920.
Aëdes fletcheri fletcheri Dyar, Ins. Ins. Mens., viii, 112, 1920.
Aëdes (Ochlerotatus) lutescens Edwards, Bull. Ent. Res., xii, 306, 1921.
Aëdes (Heteronycha) fletcheri Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 106, 1921.
Aëdes flavescens Dyar, Ins. Ins. Mens., x, 71, 1922.
Aëdes (Heteronycha) flavescens Dyar, Proc. U. S. Nat. Mus., lxii, 74, 1922.
Aëdes flavescens Dyar, Ins. Ins. Mens., xi, 92, 1923.
Aëdes flavescens Hearle, Nat. Res. Counc., Rept. No. 17, 56, 1926.

Female—Proboscis moderate, black, mixed with gray at the base. Occiput with dark brown scales, some yellow ones on vertex. Mesonotum with yellow-brown scales, dark brown in the middle and narrowly on the sides, the colors blended; pleuræ and coxæ with gray scales. Abdomen entirely dull yellow; black markings dorsally, if present, longitudinal, or in paired dots; venter with broken median stripe. Legs brown with black scales, especially at tips of femora, tibiæ, and first tarsal joint, the remaining joints nearly black and with broad white rings at the bases of all the tarsi. Wing-scales narrow, black, mixed with yellow ones, especially in the costal region.

Male—Coloration of the female. Hypopygium (Plate XLIX, Fig. 159): Side-piece large, rounded at tip; apical lobe low, rounded, with stout, short, reversed setæ; basal lobe represented by a flat rugose area which runs to the middle of the side-piece, formed of transverse ridges bearing short, curved setæ. Claspette with short, stout stem, narrowed at tip; filament rather large, sickle-shaped, with a broad even expansion on one margin that begins angularly some distance above the base. Clasper large, slightly swollen, the apical part narrower, with long terminal spine. Tenth sternites narrow, thickened on one margin and apically, with small laterally directed tooth. Ninth tergites small, conical, with about six long spines, twice as long as the tergite.

Larva (Plate XLIX, Fig. 159)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs upper in four, lower in three, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a triangular patch. Air-tube three times as long as wide, the pecten reaching the middle, the last two teeth detached, followed by a five-haired tuft; a few setæ on dorsal aspect near base. Anal segment longer than wide, the plate reaching well down the sides; ventral brush with small tufts to base; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills longer than the segment, pointed.

Europe, Asia; interior grassy plains, but straying into the lighter forest and the less arid prairie; Ontario to Albany River at Hudson's Bay, Manitoba, Saskatchewan, Alberta, Minnesota, North Dakota, Montana, Alaska (Anchorage).

The larvæ occur in the larger and deeper early spring pools. The adult is of large size, readily recognizable by the abdominal marking.

AËDES (OCHLEROTATUS) STIMULANS (Walker)

CULEX STIMULANS Walker, List Lep. Brit. Mus., i, 4, 1848.
CULICADA SUBCANTANS Felt, Bull. 97, N. Y. Sta. Mus., 448, 474, 1905.
Aëdes stimulans Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 679, 1917.
AËDES MERCURATOR Dyar, Ins. Ins. Mens., viii, 13, 1920.
AËDES STIMULANS CLASSICUS Dyar, Ins. Ins. Mens., viii, 113, 1920.
AËDES STIMULANS MISSISSIPPII Dyar, Ins. Ins. Mens., viii, 113, 1920.
AËDES STIMULANS ALBERTÆ Dyar, Ins. Ins. Mens., viii, 115, 1920.
Aëdes stimulans Dyar, Ins. Ins. Mens., viii, 12, 1920.
Aëdes stimulans stimulans and *mercurator* Dyar, Ins. Ins. Mens., viii, 114 and 115, 1920.
Aëdes (Heteronycha) stimulans Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 105, 1921.
Aëdes (Heteronycha) mercurator, albertæ, stimulans, classicus, and *missisippii* Dyar, Proc. U. S. Nat. Mus., lxii, 75, 76 and 77, 1922.

Female—Proboscis rather long, uniform, black. Occiput with yellowish white scales, a more or less distinct brown patch on each side, the marking variable. Mesonotum with brown and white scales, mottled and varied, without distinct pattern, often distinctly white or yellow on the sides, or wholly brown; pleuræ and coxæ with white scales. Abdomen black with basal segmental white bands which widen to quadrate patches on the sides; venter whitish-scaled, with median segmental blackish blotches. Legs black with white scales intermixed on femora and tibiæ, tarsi mostly black, the segments with white bands at their bases, broad and distinct on the hind-legs. Wing-scales black with more or less admixture of white ones along costa.

Male—Coloration of the female. Hypopygium (Plate XLIX, Fig. 160): Side-piece rather large, rounded at tip; apical lobe large, rounded, with rather long, stout setæ pointing inward; basal lobe absent, represented by a convex, strongly tubercular area, with a large, stout spine on one side, the tubercles bearing fine, inconspicuous hairs. Claspette stem rather long, curved; filament long, slender, sickle-shaped, a slight angular notch beyond the middle, or thicker and shorter, roundedly expanded mesially. Clasper large, swollen mesially, narrow at base and outer portion, with long terminal spine. Tenth sternites narrow, tip thickened and with terminal tooth directed laterally. Ninth tergites small, with four or five spines nearly twice as long as the tergite.

Larva (Plate XLIX, Fig. 160)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs upper three or four, lower one or two. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube three times as long as wide, the pecten on basal two-fifths, of evenly spaced teeth followed by a four-haired tuft. Anal segment longer than wide, the plate reaching well down the sides; ventral brush with small tufts preceding. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills about as long as the segment, pointed.

Canada and Atlantic States to New Jersey; Mississippi; Yukon Valley, Yukon Territory, Canada; probably central Alaska.

The larvæ prefer the flood-pools of rivers which have been actually overflowed, but in the absence of these may be found in early spring ground-pools or even in tree-stumps. The latter occurrence has been observed but once *(mississippii)*.

I once thought to divide the species into races, but the characters seem insufficient. Only the New Jersey coastal form, *classicus*, differs at all perceptibly.

AËDES (OCHLEROTATUS) CANTATOR (Coquillett)

CULEX CANTATOR Coquillet, Can. Ent., xxxv, 255, 1903.
Aëdes cantator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 700, 1917.
Aëdes cantator cantator Dyar, Ins. Ins. Mens., viii, 115, 1920.
Aëdes (Heteronycha) cantator Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 106, 1921.
Aëdes (Heteronycha) cantator Dyar, Proc. U. S. Nat. Mus., lxii, 78, 1922.
Aëdes cantator Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 77, 1925.

Female—Proboscis rather long, uniform, black. Occiput with gray scales mixed with a little brown. Prothoracic lobes and mesonotum dull red-brown, showing faintly redder in a broad median band; pleuræ and coxæ with whitish scales. Abdomen black mixed with rusty scales; basal segmental bands whitish, very narrow, but wide on the sides, usually covering the dorsum of the last two segments; venter gray, a median broken black line more or less developed. Legs black, femora, tibiæ, and first tarsal joint largely whitish except on the dorsal line; tarsi black with narrow white rings at the bases of the joints. Wing-scales narrow, blackish.

Male—Coloration of the female. Hypopygium (Plate L, Fig. 161): Side-piece rather large, constricted a little mesially, rounded at tip; apical lobe conical, running to middle of side-piece, with a few fine inwardly directed hairs; basal lobe a small slightly rugose area with a large spine beside it. Claspette with moderate straight stem; filament longer than it, sickle-shaped, thickened, expanded on the outer margin near the middle in a low angle. Claspette slightly swollen, except at base and outer portion, with long terminal spine. Tenth sternites thickened at the tip with curved terminal tooth. Ninth tergites small, each with about four spines.

Larva (Plate L, Fig. 161)—Head rounded, bulging at the sides; antennæ rather large, spinulated, a tuft near the middle. Head-hairs upper in five, lower in three, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a triangular patch. Air-tube about two and a half times as long as wide, the pecten not reaching the middle, followed by a six-haired tuft. Anal segment longer than wide, the plate reaching well down the sides; ventral brush with small tufts preceding nearly to base, dorsal tuft a long hair and brush on each side, lateral hair single. Anal gills very short, but pointed.

Atlantic coast, Nova Scotia to Virginia. Fort Monroe, Virginia, July 19, 1927 (E. Blackshear).

The larvæ breed in salt coastal pools, not the very salt ones which *sollicitans* prefers, but those a little more removed from the sea. Occasionally the larvæ are mixed with *sollicitans* and *tæniorhynchus*. The adults, emerging in numbers, fly some distance inland in search of food (40 miles is recorded).

AËDES (OCHLEROTATUS) FITCHII (Felt and Young)

CULEX FITCHII Felt and Young, Science, n. s., xxx, 313, 1904.
AËDES PALUSTRIS Dyar, Ins. Ins. Mens., iv, 89, 1916.
Aëdes palustris Dyar, Ins. Ins. Mens., v, 16, 1917.
Aëdes palustris var. PRICEI Dyar, Ins. Ins. Mens., v, 16, 1917.
AËDES MIMESIS Dyar, Ins. Ins. Mens., v, 116, 1917.
Aëdes (?) increpitus Dyar (not Dyar), Ins. Ins. Mens., v, 98, 1917.
Aëdes fitchii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 682, 1917.
Aëdes fitchii Dyar, Ins. Ins. Mens., vii, 26, 1919.
Aëdes fitchii and *palustris* Dyar, Ins. Ins. Mens., viii, 16, 27, 1920.
Aëdes fitchii fitchii, mimesis, and *palustris* Dyar, Ins. Ins. Mens., viii, 116, 117 and 118, 1920.
Aëdes (Heteronycha) increpitus and *palustris* Dyar, Ins. Ins. Mens., viii, 170 and 171, 1920.
Aëdes (Heteronycha) fitchii Dyar, Trans. Roy. Can. Inst., Toronto, xiii, Pt. 1, 109, 1921.
Aëdes (Heteronycha) fitchii, mimesis, and *palustris* Dyar, Proc. U. S. Nat. Mus., lxii, 79 and 80, 1922.
Aëdes fitchii Dyar, Ins. Ins. Mens., x, 87, 1922.
Aëdes fitchii Dyar, Ins. Ins. Mens., xi, 40, 1923.
Aëdes fitchii mimesis Dyar, Ins. Ins. Mens., xii, 41, 1924.
Aëdes fitchii palustris Dyar, Ins. Ins. Mens., xii, 178, 1924.
Aëdes (Ochlerotatus) fitchii palustris Freeborn, Mosq. of Calif., 399, 1926.

Female—Proboscis rather long, uniform, black. Occiput with yellowish white scales, a more or less distinct brown patch on each side, the marking variable. Mesonotum with brown and white scales, mottled and varied without distinct pattern, or broadly whitish on the sides; pleuræ and coxæ with white scales. Abdomen black, with basal segmental white bands which widen on the sides; sometimes apical white scales or even a median dorsal white line; venter whitish-scaled, with median segmental blackish blotches. Legs black with white scales intermixed on femora and tibiæ; tarsi mostly black, the joints with white bands at their bases, broad and distinct on the hind legs. Wing-scales black, generally with a considerable admixture of white scales, especially costally, though white scales may be absent.

Male—Coloration of the female. Hypopygium (Plate L, Fig. 162): Side-piece large, a little constricted mesially, rounded at tip; apical lobe conical, chitinized outwardly, with spine-like setæ pointing inward; basal lobe large, conical, densely tubercular and with many short, stiff setæ, those on the inner base long and inclosing a spine. Claspette stem rather long, curved; filament short, sickle-shaped, the margin evenly expanded, forming a little notch at the base. Clasper gently swollen, the tip and base narrower, with long terminal spine. Tenth sternites thickened at tip, the point of tooth somewhat laterally directed. Ninth tergites quadrate, with about six long spines, considerably longer than the tergite.

Larva (Plate L, Fig. 162)—Head rounded, bulging at the sides; antennæ rather large, spined, a tuft near the middle; head-hairs, upper in four, lower in three, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a triangular patch. Air-tube over four times as long as wide, tapering outwardly; pecten not reaching the middle, followed by a six-haired tuft. Anal segment longer than wide, the plate reaching well down the side; ventral brush posterior; dorsal tuft a long hair and brush on each side; lateral hair single. Anal gills longer than the segment, pointed. The tracheal tubes in the abdomen are narrow and twisted.

North America, following the forests.

The larvæ occur in the early spring pools, especially the grassy edges of ponds and marshes that are overflowed in spring.

The Pacific Coast form perhaps deserves a racial name, *fitchii palustris*, as there are small differences in both male hypopygium and larva. I formerly separated the Rocky Mountain form as *fitchii mimesis*, but there are no defined limits to the form and the name seems unnecessary. The larvæ occur with *excrucians (fitchii palustris* occurs with *aloponotum)*, and are distinctly more rapid in development than the associated form.

AËDES (OCHLEROTATUS) RIPARIUS Dyar and Knab

AËDES RIPARIUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 213, 1907.
Aëdes riparius Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 712, 1917.
Aëdes riparius Dyar, Ins. Ins. Mens., v, 113, 1917.
Aëdes riparius Dyar, Ins. Ins. Mens., vii, 27, 1919.
Aëdes riparius riparius Dyar, Ins. Ins. Mens., viii, 118, 1920.
Aëdes (Heteronycha) riparius Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 108, 1921.
Aëdes (Heteronycha) riparius Dyar, Proc. U. S. Nat. Mus., lxii, 80, 1922.
Aëdes riparius Dyar, Ins. Ins. Mens., xi, 88, 1923.
Aëdes riparius Dyar, Ins. Ins. Mens., xii, 41, 1924.

Female—Proboscis moderate, uniform, blackish, largely brown-scaled in the middle. Occiput with brown scales, yellow on vertex and whitish on the sides. Mesonotum with red-brown scales, a little variegated with whitish on the sides; pleuræ and coxæ with grayish white scales. Abdomen black with basal segmental whitish bands, the whole dorsum evenly and more or less densely sprinkled with white scales; venter yellowish white-scaled with more or less traces of a broken medio-ventral black line. Legs black, femora, tibiæ, and first tarsal joint with many whitish scales; tip of tibiæ and outer tarsal joints black, the latter with rather broad white rings at their bases, those on the hind pair broadest. Wing-scales narrow, dark.

Male—Coloration of the female. Palpi with many pale scales on the shaft, part of the terminal hairs pale. Hypopygium (Plate L, Fig. 163): Side-piece stout, rounded at tip; apical lobe large, running to middle, with many short, curved, and reversed setæ; basal lobe highly conical, three times as high as wide, the long setæ from ventral aspect and tip predominate; at base a large stout spine with accompanying tuft of setæ. Claspette stem rather long and slender, a little curved; filament long, narrowly sickle-shaped. Clasper mesially somewhat swollen, with long terminal spine. Tenth sternites thickened on one margin and tip, rounded. Ninth tergites small, conical, with about eight long spines.

Larva (Plate L, Fig. 163)—Head rounded, bulging on the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs in twos, anteantennal tuft more numerous. Lateral comb of the eighth segment of seven or eight scales in an irregular row, each with long central thorn. Air-tube about three times as long as wide, the pecten reaching near the middle, the last two or three teeth well detached, followed by a three-haired tuft. Anal segment with the plate reaching well toward the ventral line, ventral brush with small tufts preceding nearly to base. Dorsal tuft a long hair and brush on each side. Anal gills rather short, pointed.

Ontario, Manitoba, Saskatchewan, Alberta, Wisconsin, Minnesota, North Dakota, Montana, Colorado.

The larvæ occur in early spring pools on the prairie, especially the shallow but large ones under aspens, etc. The species is at home where the forest is breaking up into prairie, but extends somewhat into the forest and onto the open, grassy plains. The distribution is similar to that of *flavescens* in America, but without the northern extension of that species.

AËDES (OCHLEROTATUS) GROSSBECKI Dyar and Knab

AËDES GROSSBECKI Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 201, 1906.
CULEX SYLVICOLA Grossbeck, Can. Ent., xxxviii, 129, 1906.
Aëdes grossbecki Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 708, 1917.
Aëdes grossbecki grossbecki Dyar, Ins. Ins. Mens., viii, 118, 1920.
Aëdes (Heteronycha) grossbecki Dyar, Proc. U. S. Nat. Mus., lxii, 81, 1922.

Female—Proboscis moderate, black. Occiput with gray scales, more black ones on the sides. Mesonotum light gray around the sides, a median brown band becoming black behind and joining the posterior half lines which are black, but this design is subject to much variation; pleuræ and coxæ with white scales. Abdomen black with basal segmental white bands and a few white scales sprinkled on the black; venter white-scaled with broken median black line and also the tips of the segments more or less touched with black. Legs black, sprinkled with white, femora more white than black, outer tarsal joints after the first black, the joints with broad white rings at their bases, most distinct on the hind pair. Wing-scales in part broadly ovate, though mixed with narrow scales, black and white, the black predominating.

Male—Coloration of the female. Hypopygium (Plate LI, Fig. 164): Side-piece large, constricted mesially, rounded at tip; apical lobe large, conical, with a little chitinous cap bearing several rather stout, inwardly directed setæ; basal lobe large, conical, broad, with many fine setæ which are somewhat longer below and end in a large, stout spine. Claspette stem moderate, larger and hirsute at base; filament short, sickle-shaped, roundedly expanded on the whole outer margin. Clasper swollen except towards tip, with long terminal spine. Tenth sternites narrow, thickened at tip with laterally directed tooth. Ninth tergites rather large but low, with about ten long stiff spines.

Larva (Plate LI, Fig. 164)—Head rounded, bulging on the sides; antennæ moderate, spined, a tuft near the middle. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube about four times as long as wide, the pecten not reaching the middle, followed by a five-haired tuft. Anal segment longer than wide, the plate reaching the middle of the side; ventral brush with small tufts preceding nearly to base; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills about as long as the segment, pointed.

New Jersey, Maryland, Virginia, Mississippi, Missouri.

Probably throughout the Atlantic and Gulf States if looked for carefully. The species is very rare, breeding in early spring pools away from the seacoast and single-brooded.

AËDES (OCHLEROTATUS) SQUAMIGER (Coquillett)

CULEX SQUAMIGER Coquillett, Proc. U. S. Nat. Mus., xxv, 85, 1902.
GRABHAMIA DENIEDMANNII Ludlow, Can. Ent., xxxvi, 234, 1904.
Aëdes squamiger Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 705, 1917.
Aëdes squamiger Dyar, Ins. Ins. Mens., iv, 50, 1917.
Aëdes squamiger squamiger Dyar, Ins. Ins. Mens., viii, 119, 1920.
Aëdes (Heteronycha) squamiger Dyar, Proc. U. S. Nat. Mus., lxii, 81, 1922.

Female—Proboscis moderate, black. Occiput with gray scales, more black ones on the sides. Mesonotum light, more or less gray around the sides, the disk brown, varied or mottled with white; pleuræ and coxæ with white scales. Abdomen black with basal segmental white angular patches and a few white scales sprinkled on the black, sometimes extensively; venter white-scaled sparsely. Legs black sprinkled with white, femora more white than black, outer tarsal joints after the first black, the joints with broad white rings at their bases, most distinct on the hind pair. Wing-scales in part broadly ovate, though mixed with narrow scales, black and white, the black predominating.

Male—Coloration of the female. Hypopygium (Plate LI, Fig. 165): Side-piece large, somewhat constricted centrally, rounded at tip; apical lobe not large, with chitinized cap and a few slender setæ directed inwardly; basal lobe large, conical, broad, with many fine hairs, longer below and ending in a weak spine. Claspette stem short and slender, with a seta at the base; filament as long as the stem, narrowly sickle-shaped. Clasper moderately swollen except at tip, with long terminal spine. Tenth sternites narrow, tip and one margin thickened, rounded. Ninth tergites small, conical, with about five long spines.

Larva (Plate LI, Fig. 165)—Head rounded, bulging at the sides; antennæ moderate, spined, a tuft near the middle; head-hairs in twos, anteantennal tuft multiple. Lateral comb of the eighth segment of about twenty scales in a patch. Air-tube about three times as long as wide, the pecten reaching a little over a third, followed by a large hair-tuft. Anal segment longer than wide, the plate reaching the middle of the side; ventral brush with small tufts preceding the barred area; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills very short, subspherical.

Coastal region of California from San Francisco south.

The larvæ breed in salt tidal pools, especially in the little deep channels under a carpet of succulent vegetation that grows on the tidal flats. The species exists only where indentations of the coast-line permit these tidal marshes. The progress of civilization and the "improvements" made by man will doubtless in time exterminate it. As Lower California has never been explored entomologically, it is not known whether the species extends its habitat to those shores, although this is quite probable.

Subgenus TÆNIORHYNCHUS Lynch Arribálzaga

AËDES (TÆNIORHYNCHUS) ATROPALPUS (Coquillett)

CULEX ATROPALPUS Coquillett, Can. Ent., xxxiv, 292, 1902.
AËDES EPACTIUS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 53, 1908.
Aëdes atropalpus and *epactius* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 638 and 642, 1917.
Aëdes atropalpus Dyar, Ins. Ins. Mens., vii, 39, 1919.
Aëdes (Tæniorhynchus) atropalpus Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 111, 1921.
Aëdes (Tæniorhynchus) atropalpus and *epactius* Dyar, Proc. U. S. Nat. Mus., lxii, 85, 1922.

Female—Proboscis rather long, uniform, black. Occiput broadly white-scaled, black on the sides below. Mesonotum broadly dark red-brown in the middle, golden or whitish around the sides, the golden indenting the brown laterally; pleuræ and coxæ with white scales. Abdomen black, the segments with narrow basal white bands narrowing on the sides; venter with

the segments white-scaled at the base, black apically, about half and half. Legs black, tips of femora and tibiæ white; tarsal joints with white rings involving both ends of the joints. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LI, Fig. 166): Side-piece stout, conical at tip, setose; at the extreme base within a patch of dense short setæ from tubercles. Claspette with rather long, slender stem, a seta at base within and one before tip; filament long, but shorter than the stem, narrowly sickle-shaped. Clasper slender, uniform, with long, thick spine not quite terminally inserted. Tenth sternites large, thickened on one margin and terminally with laterally directed tooth. Ninth tergites undeveloped.

Larva (Plate LI, Fig. 166)—Head rounded, slightly bulging at the eyes; antennæ moderate, slender with a tuft at the middle. Head-hairs single; anteantennal tuft in four. Lateral comb of the eighth segment of many scales in a patch. Air-tube short, less than twice as long as wide, the pecten running nearly to tip, the last four teeth widely spaced and inclosing a six-haired tuft. Anal segment about as long as wide, the plate reaching the middle of the side; ventral brush with the anterior tufts smaller but not separated. Dorsal tuft a hair and brush on each side; lateral hair single, small. Anal gills three times as long as the segment, inflated, tracheate.

New Hampshire, Vermont, New York, Massachusetts, Connecticut, Pennsylvania, Maryland, Virginia, North Carolina, Arizona, and Mexico.

The larvæ live in rock-holes, especially pot-holes, along rapid streams and at falls. The larvæ may be found in these places all summer, being slow in development and several-brooded in warmer latitudes. The larvæ are of the same specific gravity as the water and float easily at any depth, being slow to come to the surface. The pupæ are lighter and tend to rise. The adults are sometimes annoying in the vicinity of falls and rapids, but are not seen far from their breeding-places.

Two races may be recognized, *atropalpus atropalpus* from the Atlantic States, and *atropalpus epactius* from Arizona and Mexico. The latter has the mesonotal light markings white instead of golden yellow.

AËDES (TÆNIORHYNCHUS) VARIPALPUS (Coquillett)

CULEX VARIPALPUS Coquillett, Can. Ent., xxxiv, 292, 1902.
TÆNIORHYNCHUS SIERRENSIS Ludlow, Can. Ent., xxxvii, 231, 1905.
Aëdes varipalpus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 644, 1917.
Aëdes varipalpus Dyar, Ins. Ins. Mens., v, 18, 1917.
Aëdes varipalpus Dyar, Ins. Ins. Mens., v, 99, 1917.
Aëdes varipalpus Dyar, Ins. Ins. Mens., vii, 19, 1919.
Aëdes varipalpus Dyar, Ins. Ins. Mens., viii, 19, 1920.
Aëdes (Tæniorhynchus) varipalpus Dyar, Ins. Ins. Mens., viii, 171, 1920.
Aëdes (Tæniorhynchus) varipalpus Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 112, 1921.
Aëdes (Tæniorhynchus) varipalpus Dyar, Proc. U. S. Nat. Mus., lxii, 86, 1922.
Aëdes (Tæniorhynchus) varipalpus Hearle, Nat. Res. Counc., Rept. No. 17, 53, 1926.
Aëdes (Culicelsa) varipalpus Freeborn, Mosq. of Calif., 416, 1926.

Female—Proboscis moderate, uniform, black. Occiput with light yellow scales, a black spot on each side and white below. Mesonotum dark brown varied with pale golden scales; golden in a central patch, scattered about the margin and in two narrow posterior lines; pleuræ and coxæ with little patches of white scales. Abdomen black with basal segmental triangular

dorsal and lateral patches of white scales; venter whitish-scaled. Legs black, femora and tibiæ white-tipped, tarsi with white rings involving both ends of the joints. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LII, Fig. 167): Side-piece moderate, rounded at tip; basal lobe slightly elevated, flat with dense rather long setæ from conspicuous tubercles. Claspette with moderate curved stem; filament as long as it, narrowly sickle-shaped. Clasper gently swollen except at base and tip, with long terminal spine, not quite apically inserted. Tenth sternites narrow, thickened at tip, with laterally directed tooth. Ninth tergites small, conical, with about five spines.

Larva (Plate LII, Fig. 167)—Head rounded quadrate, scarcely bulging at the sides; antennæ moderate, slender, a hair at the middle. Head-hairs single, anteantennal tuft in four. Lateral comb of the eighth segment a small patch of scales irregularly two rows deep. Air-tube less than three times as long as wide, conical outwardly; pecten reaching the basal third, distantly followed by a three-haired tuft. Anal segment about as long as wide, the plate reaching the middle of the side; ventral brush consisting only of two three-haired tufts; dorsal tuft in five on each side; lateral hair single, rather long. Anal gills enormous, four times as long as the segment, broad, sac-like, tracheate, and dotted.

California, Oregon, Washington, British Columbia.

The larvæ live in the water in tree-holes, principally of oaks, occasionally in old tins.

The adults fly readily by day in the forest as well as in the dark. The males congregate in little swarms about the person, waiting for the females as these come to bite.

AËDES (TÆNIORHYNCHUS) NIGROMACULIS (Ludlow)

GRABHAMIA NIGROMACULIS Ludlow, Geo. Wash. Univ. Bull., v, 85, 1907.
GRABHAMIA GRISEA Ludlow, Can. Ent., xxxix, 130, 1907.
Aëdes nigromaculis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 655, 1917.
Aëdes nigromaculis Dyar, Ins. Ins. Mens., v, 112, 1917.
Aëdes (Tæniorhynchus) nigromaculis Dyar, Trans. Royal Can. Inst., Toronto, xiii, Pt. 1, 113, 1921.
Aëdes nigromaculis Dyar, Ins. Ins. Mens., x, 87, 1922.
Aëdes (Tæniorhynchus) nigromaculis Dyar, Proc. U. S. Nat. Mus., lxii, 88, 1922.
Aëdes nigromaculis Dyar, Ins. Ins. Mens., xi, 44, 1923.
Aëdes nigromaculis Dyar, Ins. Ins. Mens., xii, 45, 1924.

Female—Proboscis moderate, uniform, black, with a small white ring near the middle, sometimes obsolete. Occiput with dull yellow scales in the middle, then broadly brown, pale again below. Mesonotum with dull yellow scales, broadly brown in the middle and back to two-thirds, and brown on the sides, the colors blended; pleuræ and coxæ with grayish white scales. Abdomen black, the segments with basal yellowish bands, quadrately widened at the sides, and a median dorsal stripe, all the markings of the same color; venter yellowish gray, with sparse black scales intermixed. The dorsal coloration is variable, the pale markings sometimes extensive. Legs with pale yellowish and black scales, the former predominating on femora, tibiæ, and first tarsal joint; tarsi black, with rather broad white rings at the bases of the joints. Wing-scales narrow, dark, but intermixed with yellowish white ones, especially toward the costa.

Male—Coloration of the female, save that the proboscis is black; palpi dark, except a pale area in the middle of the long joint. Hypopygium (Plate LII, Fig. 168): Side-piece stout, uniform, somewhat conical at tip; basal lobe an area of dense rather long setæ from distinct tubercles. Claspette with rather stout short stem, a tubercle on a pedicel before its tip; filament longer than the stem, slenderly sickle-shaped. Clasper large, somewhat swollen, except on the outer third, with rather long terminal spine. Tenth sternites narrow, thick on one margin and at tip, with laterally directed terminal tooth. Ninth tergites low but broad, with about six weak spines, some of them scarcely modified setæ.

Larva (Plate LII, Fig. 168)—Head rounded, scarcely bulging at the sides; antennæ moderate with a tuft near the middle. Head-hairs single, anteantennal tuft in three. Lateral comb of the eighth segment of about nine scales in an open triangular patch, each scale with long central thorn. Air-tube twice as long as wide, conical outwardly, the pecten reaching three-fourths of the tube, the last three teeth stouter and widely detached, followed near the tip of the tube by a minute tuft. Anal segment wider than long, ringed by the plate, the ventral brush posterior; dorsal tuft a hair and brush on each side; lateral hair single, small. Anal gills longer than the segment, pointed.

Minnesota, Alberta, Montana, Idaho, Colorado, Missouri, Louisiana, Texas, New Mexico.

The species inhabits the more arid plains of the middle West, the larvæ occurring in rain-pools or irrigation water, often distinctly alkaline. Whenever these pools appear, except of course in winter, some of the eggs lying on the ground hatch. If the season is rainy the adults may appear in large numbers, together with *dorsalis, vexans, idahoensis,* and *campestris.*

AËDES (TÆNIORHYNCHUS) SOLLICITANS (Walker)

CULEX SOLLICITANS Walker, Ins. Saund., 427, 1856.

Aëdes sollicitans Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 658, 1917.

Aëdes (Tæniorhynchus) sollicitans Dyar, Ins. Ins. Mens., vi, 79, 1918.

Aëdes (Tæniorhynchus) sollicitans Dyar, Trans. Royal Can. Inst., Toronto, xiii, Pt. 1, 113, 1921.

Aëdes (Tæniorhynchus) sollicitans Dyar, Proc. U. S. Nat. Mus., lxii, 90, 1922.

Aëdes (Culicelsa) sollicitans Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 410, 1925.

Female—Proboscis moderate, black, with a white band in the middle. Occiput with dull yellow scales on the vertex, broadly brown on the sides, pale below. Mesonotum with brown and yellowish scales, darker in the middle and on the sides, paler over antescutellar space; pleuræ and coxæ with grayish white scales. Abdomen black, with basal segmental yellowish bands and median line; the quadrate spots on the sides are white, distinctly of a different color from the other light markings; venter with yellowish and black scales mixed and more or less distinct ventral black spots. Legs with femora, tibiæ, and a ring in the middle of the first tarsal joint yellowish sprinkled with black scales; ends of femora and tibiæ and the tarsal joints black, with rather broad white rings at their bases. Wing-scales narrow, black, inconspicuously but uniformly sprinkled with whitish ones.

Male—Coloration of the female. Hypopygium (Plate LII, Fig. 169): Side-piece rather large, somewhat conical at tip; basal lobe a circular area of rather long hairs from conspicuous tubercles. Claspette stem moderate,

stout, with a seta on a pedicel before tip; filament broadly sickle-shaped, as long as the stem. Clasper somewhat swollen except on the outer third, with long terminal spine. Tenth sternites thickened on one side and at tip, the terminal tooth laterally curved. Ninth tergites small, each with about five rather weak spines. Mesosome cone-shaped.

Larva (Plate LII, Fig. 169)—Head rounded, scarcely bulging at the sides; antennæ moderate with a tuft at the middle. Head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of few scales in a triangular patch. Air-tube twice as long as wide, tapered outwardly, the pecten reaching slightly beyond the middle, followed by a hair-tuft at outer third of tube. Anal segment wider than long, ringed by the plate; ventral brush posterior; dorsal tuft a hair and a brush on each side; lateral hair single, small. Anal gills very short but pointed.

Atlantic and Gulf coasts from Maine to Florida and Texas; Bahamas, Antilles.

The larvæ occur in the saltest shore-pools filled by high tide, storm, or rain, and a brood emerges when the pools are thus filled, provided conditions are favorable. If the pools dry out too soon, the larvæ perish in countless thousands, and if the tide rises too high and lets in fish, the larvæ are then devoured. Nevertheless this species often appears in swarms, which may travel inland for 40 miles. It has been called the "Jersey mosquito" and in New Jersey large sums have been spent draining and ditching the salt marshes for its extermination. It is, however, simply a nuisance, not a disease carrier.

AËDES (TÆNIORHYNCHUS) MITCHELLÆ (Dyar)

CULEX MITCHELLÆ Dyar, Journ. N. Y. Ent. Soc., xiii, 74, 1905.
Aëdes mitchellæ Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 665, 1917.
Aëdes (Tæniorhynchus) mitchellæ Dyar, Proc. U. S. Nat. Mus., lxii, 89, 1922.

Female—Proboscis moderate, black, with a white ring in the middle. Occiput with yellow scales in the middle, broadly brown on each side, narrowly pale below. Mesonotum with dull yellowish golden scales, dark brown ones in the middle and on the sides, the colors blended; pleuræ and coxæ with grayish white scales. Abdomen black, with basal segmental and median lines of white, slightly tinted with yellow; lateral quadrate spots white; venter whitish with black scales intermixed and a broken median black line. Legs black with a sprinkling of white scales on femora and tibiæ; tarsi black with rather broad white rings at the bases of the joints. Wing-scales narrow, entirely dark.

Male—Coloration of the female. Hypopygium (Plate LIX, Fig. 170): Side-piece large, slightly conical at tip; basal lobe a slightly elevated circular area of rather long hairs from distinct tubercles. Claspette stem moderate, straight; filament longer than the stem, rather broadly sickle-shaped. Clasper distinctly swollen on the basal two-thirds, with long terminal spine. Tenth sternites with thickened margin and tip, the terminal tooth laterally directed. Ninth tergites small, with about five spines, the outermost seta-form.

Larva (Plate LIX, Fig. 170)—Head rounded, bulging on the sides; head-hairs single, anteantennal tuft in six. Antennæ rather long, spined, with a tuft near the middle. Lateral comb of the eighth segment of rather many scales in an irregular double row. Air-tube about four times as long as wide,

only slightly tapering outwardly, the pecten not reaching the middle, followed by a seven-haired tuft. Anal segment longer than wide, ringed by the plate, ventral brush posterior. Dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills about as long as the segment, pointed.

Southern Georgia, Alabama, Louisiana, Texas.

The larvæ occur in early spring pools (February and March) filled by rain and away from the sea-coast. The species is very rare, and no annoyance from it has ever been reported.

AËDES (TÆNIORHYNCHUS) TÆNIORHYNCHUS (Wiedemann)

CULEX TÆNIORHYNCHUS Wiedemann, Dipt. Exot., 43, 1821.
CULEX DAMNOSUS Say, Journ. Acad. Nat. Sci. Phil., iii, 11, 1823.
TÆNIORHYNCHUS NIGER Giles (not *Aëdes niger* Theobald, 1901), Journ. Trop. Med., vii, 382, 1904.
CULEX PORTORICENSIS Ludlow, Can. Ent., xxxvii, 386, 1905.
Culex portoricensis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 172, 1911.
AËDES EPINOLUS Dyar and Knab, Ins. Ins. Mens., ii, 61, 1914.
Aëdes tæniorhynchus Dyar, Ins. Ins Mens., iv, 50, 1916.
Aëdes tæniorhynchus and *niger* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 667 and 672, 1917.
Aëdes epinolus Dyar and Knab, Ins. Ins. Mens., v, 166, 1917.
Aëdes epinolus Dyar and Knab, Ins. Ins. Mens., v, 166, 1918.
Aëdes (Tæniorhynchus) tæniorhynchus Dyar, Ins. Ins. Mens., vi, 79, 1918.
Aëdes (Tæniorhynchus) tæniorhynchus and *portoricensis* Dyar, Proc. U. S. Nat. Mus., lxii, 87 and 88, 1922.
Aëdes (Culicelsa) tæniorhynchus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 411, 1925.
Aëdes tæniorhynchus Dyar, Ins. Ins. Mens., xiii, 23, 1925.
Aëdes tæniorhynchus Dyar, Ins. Ins. Mens., xiii, 30, 1925.
Aëdes (Tæniorhynchus) tæniorhynchus Dyar, Ins. Ins. Mens., xiii, 145, 1925.
Aëdes tæniorhynchus Dyar, Ins. Ins. Mens., xiii, 215, 1925.
Aëdes (Culicelsa) tæniorhynchus Freeborn, Mosq. of Calif., 414, 1926.

Female—Proboscis rather long and slender, black with a white ring in the middle. Occiput dark brown-scaled, a small white spot on the side and whitish below. Mesonotum dark brown, a few whitish scales posteriorly. Abdomen black with basal segmental white bands and quadrate lateral spots, which are detached from the bands and somewhat posterior to them; venter pale scaled, the segments broadly blackish banded at their tips. Legs black, the tarsal joints with white rings at their bases varying in extent; when large, the fifth hind tarsal is all white. Wing-scales narrow, all dark.

Male—Coloration of the female. Hypopygium (Plate LIII, Fig. 171): Side-piece stout and long, conical at tip; basal lobe one-third the length of side-piece from base, consisting of a collection of short hairs from conspicuous tubercles. Claspette stem rather long and slender, the filament longer than it, narrowly sickle-shaped. Clasper rather strongly swollen on basal two-thirds, with very long terminal spine. Tenth sternites rather long, with one margin and the tip thickened, the tooth laterally directed. Ninth tergites very small and weak, with three or four small setæ.

Larva (Plate LIII, Fig. 171)—Head rounded, slightly bulging on the sides; antennæ moderate, spined, a tuft near the middle. Head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of about twenty scales in a small triangular patch, single scales with the terminal spinules alike. Air-tube less than twice as long as wide, the pecten reaching the

middle, followed by a hair-tuft. Anal segment wider than long, ringed by the plate; ventral brush posterior. Dorsal tuft a hair and brush on each side; lateral hair single, small. Anal gills very short.

Atlantic and Gulf coasts from New York to Florida, to Mexico and to the Guianas; Antilles; Pacific coast from Southern California to Peru.

The larvæ occur in the coastal marshes in pools while not necessarily salt are not far removed from the coast. They are associated in the north with *cantator* rather than with *sollicitans;* in the south this is the only salt-marsh species. The adults may fly many miles and where marshes are extensive, as in Florida, they may appear in swarms. In Panama this species is tolerated as a temporary plague, for the mosquitoes soon disappear. It is not a disease carrier.

AËDES (TÆNIORHYNCHUS) FLUVIATILIS (Lutz)

CULEX FLUVIATILIS Lutz, in Bourroul, Mosq. do Brasil, 72, 1904.
DANIELSIA MEDIOMACULATA Theobald, Mon. Culic., iv, 245, 1907.
DANIELSIA TRIPUNCTATA Theobald, Mon. Culic., iv, 247, 1907.
Danielsia tripunctata Peryassú, Os Culic. do Braz., 175, 1908.
Danielsia tripunctata Theobald, Mon. Culic., v, 244, 1910.
Danielsia mediomaculata tripunctata, Gualteria fluviatilis, and *Culicada fluviatilis* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 146, 147, 150 and 159, 1911.
Aëdes fluviatilis Howard, Dyar, and Knab (in part not Lutz), Mosq. No. and Cent. Am. and W. I., iv, 1917.
Aëdes fluviatilis Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 23, 1921.
AËDES DRACONARIUS Dyar, Ins. Ins. Mens., x, 194, 1922.
Aëdes (Culicelsa) fluviatilis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 415, 1925.

Female—Proboscis moderate, uniform, black. Occiput with dense pale golden scales, narrowly black on the side below. Mesonotum with pale golden scales anteriorly, the sides narrowly and behind more broadly with black scales; the golden area is crossed indistinctly by two narrow black lines; pleuræ and coxæ with yellowish white scales. Abdomen black above, a broken median white stripe, the sides with basal segmental pale spots; venter white or whitish-scaled, with or without black bands at the tips of the segments. Legs black, the tarsi with small white rings at the bases of the joints, very slightly involving the apices also on some joints. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LIII, Fig. 172): Side-piece moderate, conical; at extreme base a rather large area of fine hairs, becoming larger toward the margin, the last ones long. Claspette stem moderately stout, a little swollen apically, with a seta; filament longer than the stem, broadly ribband-like, pointed at tip, wider than the stem. Clasper somewhat swollen at tip, with long terminal spine. Tenth sternites thickened on margin and tip, the latter forming a shoulder before the laterally directed sharp tooth. Ninth tergites undeveloped. Mesosome a weak round-tipped cylinder.

Larva—Head rounded, slightly bulging at the sides; antennæ rather long, slender, sparsely spinulated, a small tuft near the middle. Head-hairs, upper in three, lower in two, anteantennal tuft in six. Lateral comb of the eighth segment a large patch of many scales some five rows deep. Air-tube three times as long as wide, the pecten running nearly to the middle, closely followed by a large hair-tuft. Anal segment longer than wide, the plate small, reaching the middle of the side behind; ventral brush with small tufts pre-

ceding, but not basally of the middle of the segment. Dorsal tuft a hair and brush on each side; lateral hair single, small. Anal gills about as long as the segment, tapered.

Brazil, French Guiana, Surinam.

The larvæ live in the water in rock-holes along rivers, filled by high water or rain, not in salty pools.

AËDES (TÆNIORHYNCHUS) LITHŒCETOR Dyar and Knab

AËDES LITHŒCETOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 201, 1907.
Aëdes fluviatilis Howard, Dyar, and Knab (in part not Lutz), Mosq. No. and Cent. Am. and W. I., iv, 717, 1917.
Aëdes (Tæniorhynchus) fluviatilis Dyar (not Lutz), Ins. Ins. Mens., vi, 79, 1918.
Aëdes (Tæniorhynchus) fluviatilis Dyar (not Lutz), Proc. U. S. Nat. Mus., lxii, 86, 1922.
Aëdes (Tæniorhynchus) fluviatilis Dyar (not Lutz), Ins. Ins. Mens., xiii, 146, 1925.

Female—Proboscis moderate, uniform, black. Occiput with dense pale golden scales, narrowly black on the sides below. Mesonotum with pale golden or partly whitish scales anteriorly, the sides narrowly and behind broadly black, more or less distinctly cut by two brown lines or shaded with brown centrally; pleuræ and coxæ with yellowish white scales. Abdomen black, a broken median white stripe, the sides with basal segmental white spots; venter whitish-scaled. Legs black, the tarsi with small white rings at the bases of the joints, very slightly involving the apices also on some joints. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LIII, Fig. 173): Side-piece moderate, conical; basal lobe represented by a small aggregation of fine setæ of which two at the margin are long. Claspette stem moderate, with a seta near the base and one before tip; filament longer than the stem, cylindrical or only very narrowly ribband-shaped. Clasper slender, a little enlarged at base, with long terminal spine. Tenth sternites with the thickened margin running across the tip, forming a hook; terminal tooth laterally directed. Ninth tergites undeveloped.

Larva (Plate LIII, Fig. 173)—Head rounded, slightly bulging at the sides; antennæ rather long, slender, sparsely spinulated, a small tuft near the middle. Head-hairs, upper in three, lower in two, anteantennal tuft in six. Lateral comb of the eighth segment a large patch of many scales, some five rows deep. Air-tube three times as long as wide, the pecten running nearly to the middle, closely followed by a large hair-tuft. Anal segment longer than wide, the plate small, reaching the middle of the side behind; ventral brush with small tufts preceding, but not basally of the middle of the segment. Dorsal tuft a hair and brush on each side; lateral hair single, small. Anal gills about as long as the segment, tapered.

Panama and Mexico.

The larvæ are found in holes in rocks along the sea-coast that often contain salt. Mexican specimens, apparently the same, were found in rock-holes along a stream.

AËDES (TÆNIORHYNCHUS) ZOÖSOPHUS Dyar and Knab

AËDES ZOÖSOPHUS Dyar and Knab, Ins. Ins. Mens., v, 165, 1918.
Aëdes (Tæniorhynchus) fluviatilis Dyar (not Lutz), Ins. Ins. Mens., ix, 30, 1921.
Aëdes (Tæniorhynchus) fluviatilis Dyar (not Lutz, in part not Dyar and Knab), Ins. Ins. Mens., xiii, 146, 1925.

Female—Proboscis moderate, uniform, black. Occiput with yellowish white scales, two white spots on the side separated by a small black one. Mesonotum with the anterior half with gray scales with yellowish silvery cast, the posterior third black-scaled but cut by the median line and two small lines each side on antescutellar space of the pale color; pleuræ and coxæ with white scales. Abdomen black, the segments with basal median and lateral triangular white patches, the dorsal row smaller and obsolete posteriorly; venter with the basal halves of the segments white, apical halves black. Legs black, the tarsi rather broadly white-banded at the bases of the joints. Wing-scales narrow, black.

Male—Unknown.

Larva—Unknown.

Texas (Kerrville).

I have only the single female type. An expedition was made to the type locality, but the species was not rediscovered. I have referred this to the synonymy of *fluviatilis*, supposing the Panama and Mexican forms to be also this species. However, by the present separation, it seems more probable that *zoösophus* is distinct.

AËDES (TÆNIORHYNCHUS) PERICHARES Dyar

AËDES (CULISELSA) PERICHARES Dyar, Ins. Ins. Mens., ix, 36, 1921.

Aëdes (Culiselsa) fluviatilis Bonne and Bonne-Wepster (in part not Lutz), Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 415, 1925.

Aëdes (Tæniorhynchus) perichares Dyar, Ins. Ins. Mens., xiii, 147, 1925.

Female—Proboscis rather long and slender, uniform, black. Occiput with yellowish white scales, a black spot on the side. Mesonotum with dark brown scales, a silvery band along each side which forms a median tooth, the anterior part of the band with the tooth forming a curved lateral mark; pleuræ and coxæ with yellowish white scales. Abdomen black, with small basal segmental white bands, fainter centrally and sometimes leaving only the lateral spots; venter with the basal halves of the segments white-scaled, the apical halves black. Legs black, the tarsi with small white rings at the bases of the joints, more or less involving the apices also; femora and tibiæ white at tips. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LIII, Fig. 174): Side-piece rather long and slender, tapered outwardly; basal lobe an elliptical cluster of some twenty-five hairs, all long. Claspette stem rather long and slender, with a long seta at tip; filament cylindrical, pointed, about as long as the stem. Clasper moderate, cylindrical, uniform, with long terminal spine. Tenth sternites narrow, one margin and the tip thickened, with small laterally directed tooth. Ninth tergites undeveloped. Mesosome a large thin cone.

Larva—Unknown.

Costa Rica and Nicaragua.

The Nicaragua specimens have the pale mesonotal marks more golden than silvery. This is, perhaps, but a local form of *lithœcetor*, for specimens from Mexico are normally marked.

Subgenus FINLAYA Theobald

AËDES (FINLAYA) TRISERIATUS (Say)

CULEX TRISERIATUS Say, Journ. Acad. Nat. Sci. Phil., iii, 12, 1823.
FINLAYA ? NIGRA Ludlow (not Theobald, 1901, not Giles, 1904), Can. Ent., xxxvii, 387, 1905.
Aëdes triseriatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 762, 1917.
Aëdes triseriatus Dyar, Ins. Ins. Mens., v, 118, 1917.
Aëdes triseriatus var. HENDERSONI Cockerell, Journ. Econ. Ent., xi, 199, 1918.
Aëdes triseriatus Dyar, Ins. Ins. Mens., vii, 39, 1919.
Aëdes (Finlaya) triseriatus Dyar, Trans. Royal Can. Inst., Toronto, xiii, Pt. 1, 114, 1921.
Aëdes (Finlaya) triseriatus Dyar, Proc. U. S. Nat. Mus., lxii, 91, 1922.

Female—Proboscis moderate, uniform, black. Occiput with silvery white scales, narrowly brown behind. Mesonotum dark brown-scaled in the middle, the sides more or less broadly silvery white, widest on the shoulders, and silvery scales around the antescutellar space; pleuræ and coxæ with silvery white scales. Abdomen black, the segments with lateral basal triangular silvery white patches; venter white-scaled, the apices of the posterior segments black-banded. Legs black, tips of femora white. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LIV, Fig. 175): Side-piece long, conical; a slight aggregation of hairs at the lower corner basally and at the outer third within. Claspette stem short, uniform; filament cylindrical, narrow, longer than the stem. Clasper rather small and slender; terminal spine very long, over half as long as clasper. Tenth sternites with one margin thickened, the tip thick and forming a long recurved tooth. Ninth tergites small but distinct, each with about four fine hairs.

Larva (Plate LIV, Fig. 175)—Head rounded quadrate, the sides nearly straight. Antennæ rather long, slender, a hair near the middle. Head-hairs low on the face, upper single and long, lower double and short; four small, stemmed tufts along the margin. Lateral comb of the eighth segment of about ten scales in an irregular double row. Air-tube two and a half times as long as wide, thick, uniform, rounded at tip, the pecten to the middle, followed by a single hair. Anal segment about as long as wide, the plate reaching well down the sides; ventral brush of few, but long-stemmed tufts, more slender ones preceding the barred area nearly to base. Dorsal tuft a long hair and five-haired brush on each side; lateral tuft in seven, distinct. Anal gills very long, full, rounded.

Atlantic States and Mississippi Valley from New Hampshire and Montana to Florida and Texas.

The larvæ live in the water in tree-holes and the adults frequent the forest. The insect never appears in large numbers, but is found often in very dry woods where only tree-hole breeders can exist. The bite is unusually painful and lasting; at least this is the experience of the writer.

AËDES (FINLAYA) ALLENI Turner

AËDES ALLENI Turner, Ins. Ins. Mens., xii, 84, 1924.
Aëdes alleni Dyar, Ins. Ins. Mens., xii, 131, 1924.

Female—Proboscis rather long and slender, uniform, black. Occiput with silvery scales, broadly brown behind. Mesonotum with the anterior half silvered across, with more or less of brown shade centrally, the posterior half black-scaled, with silvery border about the antescutellar space,

and a narrow line on each side running forward to the anterior silver; pleuræ and coxæ with silvery white scales. Abdomen black, with basal segmental white bands, triangularly widening on the sides; venter with the segments white at base, broadly black-banded apically. Legs black, femora white at tips, tarsi with rather broad white rings at the bases of the joints, narrowing outwardly, the fifth joint black. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LIV, Fig. 176): Side-piece long, conical; hairs within uniformly fine, very slightly aggregated at base of side-piece. Claspette stem short, uniform; filament cylindrical, narrow, longer than the stem. Clasper swollen on basal half, the spine very long, over half as long as clasper. Tenth sternites with the tips strongly thickened, the tooth stout, directed laterally. Ninth tergites very slight, each with about five fine hairs.

Larva (Plate LIV, Fig. 176)—Head rounded quadrate, the sides nearly straight. Antennæ rather long, slender, a hair near the middle. Head-hairs low on the face, upper single and long, lower in fours and short; four small tufts along the margin. Lateral comb of the eighth segment of seven scales in a curved row. Air-tube two and a half times as long as wide, thick, uniform, rounded at tip; pecten reaching the middle, followed by a two-haired tuft. Anal segment about as long as wide, the plate reaching well down the sides; ventral brush of few but long-stemmed tufts, with a few shorter ones preceding. Dorsal tuft a long hair and five-haired brush on each side; lateral tuft in four, distinct. Anal gills very long, full, rounded.

Texas and Mexico.

Rio Grande Valley of Texas, and presumably the Mexican side of this valley also. The larvæ live in the water in tree-holes. This species is known only from the Rio Grande Valley, where *triseriatus* does not occur.

AËDES (FINLAYA) PODOGRAPHICUS Dyar and Knab

AËDES PODOGRAPHICUS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 165, 1906.
Aëdes podographicus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 812, 1917.
Aëdes (Finlaya) podographicus Dyar, Ins. Ins. Mens., ix, 151, 1921.
AËDES (FINLAYA) HETEROPUS Dyar, Ins. Ins. Mens., ix, 152, 1921.
Aëdes (Finlaya) heteropus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 422, 1925.
AËDES METŒCOPUS Dyar, Ins. Ins. Mens., xiii, 30, 1925.
Aëdes (Finlaya) heteropus Dyar, Ins. Ins. Mens., xiii, 147, 1925.

Female—Proboscis moderate, uniform, black. Occiput with erect pale scales on the vertex, white ones behind the eyes and black below. Mesonotum dark brown-scaled, the shoulders with a quadrate silvery white patch on each side, with narrow median line of silvery scales and some about antescutellar space; pleuræ and coxæ with silvery white scales. Abdomen black, the segments with lateral basal angular white patches; venter with the segments silvery white at base, black at tip. Legs black; fore legs with small white spot at base of first and second tarsal joints; mid and hind femora white tipped; mid and hind legs with the first tarsal joint white at base and tip broadly, the second joint white at base, making two broad white rings; wing-scales narrow, black.

Male—Coloration as in the female. Hypopygium (Plate LIV, Fig. 177): Side-piece long, conical at tip. Claspette stem short and rather stout; filament cylindrical, narrow, longer than the stem. Clasper slightly swollen on basal half, the spine very long, longer than half the clasper. Tenth sternites thickened at tip, with laterally directed tooth. Ninth tergites undeveloped.

Larva (Plate LIV, Fig. 177)—Head rounded, slightly bulging on the sides; antennæ rather long, slender, a single hair near the middle; head-hairs single, anteantennal tuft in six. Lateral comb of the eighth segment of many scales in a patch three rows deep. Air-tube two and a half times as long as wide, the pecten reaching the middle, followed by a three-haired tuft. Anal segment longer than wide, the plate reaching below the middle of the side; ventral brush with small tufts preceding the barred area. Dorsal tuft a long hair and five-haired brush on each side; lateral tuft in four, distinct. Anal gills about as long as the segment, pointed.

Mexico, Costa Rica, Ecuador, Venezuela.

The distribution is probably more continuous than here indicated; but unless both sexes are at hand, it is impossible to discriminate between this species and *terrens*.

AËDES (FINLAYA) TERRENS (Walker)

CULEX TERRENS Walker, Ins. Saund., 429, 1856.
Stegomyia terrens Theobald, Mon. Culic., i, 305, 1901.
Culex terrens Theobald, Mon. Culic., i, 423, 1901.
HÆMAGOGUS OSWALDI Lutz, in Bourroul, Mosq. do Brasil, 66. 1904.
VERRALLINA INSOLITA Coquillett, Can. Ent., xxxviii, 62, 1906.
VERRALLINA LATERNARIA Coquillett, Proc. Ent., Soc. Wash., vii, 184, 1906.
Stegomyia terrens, Gualteria oswaldoi, and *Verrallina insolita* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 135, 149 and 226, 1911.
Aëdes oswaldi Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 815, 1917.
Aëdes (Gualteria) oswaldi Dyar, Ins. Ins. Mens., vi, 80, 1918.
Aëdes (Finlaya) oswaldi Dyar, Ins. Ins. Mens., viii, 103, 1920.
Aëdes terrens Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 23, 1921.
Aëdes (Finlaya) terrens Dyar, Ins. Ins. Mens., ix, 152, 1921.
Aëdes (Finlaya) oswaldi var. BRAZILIENSIS Gordon and Evans, Ann. Trop. Med. and Par., xvi, 329, 1922.
AËDES TERRENS HOMŒOPUS Dyar, Ins. Ins. Mens., x, 92, 1922.
Aëdes (Finlaya) terrens Dyar, Ins. Ins. Mens., xiii, 147, 1925.
Aëdes (Finlaya) terrens Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 424, 1925.

Female—Proboscis moderate, uniform, black. Occiput with erect pale scales on the vertex, white ones behind the eyes and black below. Mesonotum dark brown-scaled, the shoulders with a quadrate silvery white patch on each side, with narrow median line of silvery scales and some about antescutellar space; pleuræ and coxæ with silvery white scales. Abdomen black, the segments with lateral basal angular white patches; venter with the segments silvery white at base, black at tip. Legs black; fore legs with small white spot at base of first and second tarsal joints; mid and hind femora white tipped; mid and hind legs with the first tarsal joint white at base and tip broadly, the second joint white at base, making two broad white rings; wing-scales narrow, black.

Male—Mesonotum silvered across anteriorly, the posterior edge of the silver patch irregular; otherwise as in the female. Hypopygium (Plate LV, Fig. 178): Side-piece long, conical at tip. Claspette-stem short and rather stout, with two or three setæ on the inner side; filament cylindrical, narrow, longer than the stem. Clasper slightly swollen on basal half, the spine very long, longer than half the clasper. Tenth sternites thickened at tip, with laterally directed tooth. Ninth tergites undeveloped. Mesosome convex, narrow outwardly, truncate at tip.

Larva (Plate LV, Fig. 178)—Head rounded, slightly bulging at the sides;

antennæ slender with a hair at the middle. Head-hairs in twos, anteantennal tuft in four. Lateral comb of the eighth segment of many scales in a patch four rows deep. Air-tube nearly three times as long as wide, tapered outwardly; pecten running to the middle, followed by a five-haired tuft. Anal segment longer than wide, the plate reaching below the middle of the side; ventral brush posterior, with small tufts preceding the barred area, but not to middle. Dorsal tuft a long hair and six-haired brush on each side; lateral tuft in five, distinct. Anal gills about as long as the segment, pointed.

Mexico, Costa Rica, Panama, Surinam, Trinidad, Brazil.

The distribution is probably more continuous than here indicated; but the species is local and easily overlooked. The larvæ occur in the water in tree-holes.

It seems probable that the true *terrens* is the form here treated as *argyrothorax,* and that the present species from Mexico, Costa Rica, and Panama should be called *insolita* Coq. (= *laternaria* Coq., = *terrens homœopus* Dyar); but without a male from Brazil I refrain from making a positive reference.

AËDES (FINLAYA) THORNTONI Dyar and Knab

AËDES THORNTONI Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 10, 1907.
Aëdes thorntoni Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 819, 1917.
Aëdes (Gualteria) thorntoni Dyar, Ins. Ins. Mens., vi, 80, 1918.
Aëdes (Finlaya) thorntoni Dyar, Ins. Ins. Mens., ix, 153, 1921.
Aëdes (Finlaya) thorntoni Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 419, 1925.
Aëdes (Finlaya) thorntoni Dyar, Ins. Ins. Mens., xiii, 147, 1925.

Female—Proboscis moderate, uniform, black. Occiput with erect pale scales on the vertex, white ones behind the eyes and black below. Mesonotum dark brown-scaled, the anterior half silvered across, the edge a little indented mesially and some silvery scales about antescutellar space; pleuræ and coxæ with silvery white scales. Abdomen black, the segments with lateral basal angular white patches; venter with the segments silvery white at base, black at tip. Legs black; fore legs with small white spot at base of first and second tarsal joints; mid and hind femora white-tipped; mid and hind legs with the first tarsal joint white at base and tip broadly, the second joint white at base, making two broad white rings; wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LV, Fig. 179): Side-piece moderate, conical. Claspette with short stout stem with two or three setæ on the inner side; filament long, cylindrical, twice as long as the stem. Clasper swollen on the basal half, terminal spine over half as long as the clasper. Tenth sternites thickened at tip, with laterally directed tooth. Ninth tergites undeveloped.

Larva (Plate LV, Fig. 179)—Head rounded, bulging at the sides; antennæ rather long, slender, a hair at the middle. Head-hairs single, anteantennal tuft in three. Lateral comb of the eighth segment of many scales in a patch four rows deep. Air-tube over three times as long as wide, tapered on outer half; pecten not reaching the middle, followed distantly by a four-haired tuft. Anal segment longer than wide, the plate reaching below the middle of the side; ventral brush with smaller tufts preceding, not before the middle of the segment. Dorsal tuft a long hair and brush

on each side; lateral tuft in five, distinct. Anal gills as long as the segment, pointed.

Nicaragua, Panama.

The larvæ occur in the water in tree-holes. The distribution of this species is apparently more restricted than its allies *terrens* and *podographicus;* but this may be due in part at least to imperfect collecting.

AËDES (FINLAYA) ARGYROTHORAX Bonne-Wepster and Bonne

AËDES (GUALTERIA) ARGYROTHORAX Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 179, 1920.

Aëdes (Finlaya) argyrothorax Dyar, Ins. Ins. Mens., ix, 153, 1921.

Aëdes (Finlaya) argyrothorax Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 422, 1925.

Female—Unknown.

Male—Proboscis rather long and slender, black. Occiput with silvery scales, dark behind. Mesonotum dark brown-scaled, the shoulders squarely and a narrow anterior connecting band silvery-scaled, as also a border to the antescutellar space; pleuræ and coxæ with silvery white scales. Abdomen black with lateral basal segmental silvery white spots; venter dark-scaled. Legs black; front femora with white tip, mid and hind femora white with two black marks; fore tarsi with small white spots at base of first and second joints; mid and hind tarsi with base and tip of the first joint and base of second joint white-ringed. Wing-scales narrow, blackish. Hypopygium (Plate LV, Fig. 180): Side-piece long, a little tapered outwardly; a slight aggregation of long setæ at the base. Claspette stem moderate, stout, with a seta within at middle and one at base; filament narrow at base, broadly elliptically widened outwardly and longitudinally lined. Clasper moderate, slightly swollen basally, with very long terminal spine. Tenth sternites thickened at tip, with laterally directed tooth. Ninth tergites undeveloped.

Larva—Unknown.

Surinam.

Known only by two captured specimens, both males. I think that it is entirely probable that this will prove to be the true *terrens* Walk. (= *oswaldi* Lutz = *oswaldi braziliensis* Gordon and Evans), and that the northern form must be known as *insolita* Coq. However, as no Brazilian males are before me, I let the names stand.

AËDES (FINLAYA) KNABI (Coquillett)

CULEX KNABI Coquillett, Proc. Ent. Soc. Wash., vii, 183, 1906.

Aëdes knabi Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 841, 1917.

Aëdes (? Gualteria) knabi Dyar, Ins. Ins. Mens., v, 73, 1918.

Aëdes (Ochlerotatus) knabi Dyar, Ins. Ins. Mens., x, 160, 1922.

Female—Proboscis moderate, uniform, black. Occiput with yellow scales and erect brown bristles behind. Mesonotum yellow in the integument, the scales golden orange, with two narrow faint black lines. Abdomen black with purplish reflection, with basal lateral segmental silvery white spots; venter with the segments dull yellow at base, broadly black apically. Legs black; first, second, and third (slightly) joints of tarsi broadly pale basally, not true white. Wing-scales narrow, black.

Male—Unknown.

Larva (Plate LV, Fig. 181)—Head rounded, not bulging on the sides; antennæ rather long, slender, a single hair at the middle; head-hairs single, anteantennal tuft in three. Lateral comb of the eighth segment of about twenty scales in an irregular double row. Air-tube two and a half times as long as wide, tapered outwardly; pecten reaching a little beyond the middle, followed by a single hair. Anal segment a little longer than wide, the plate reaching below the middle of the side; ventral brush with small tufts preceding, not to the middle of the segment; dorsal tuft a long hair and a six-haired brush on each side; lateral hair single, small. Anal gills shorter than the segment, pointed.

Mexico (Tahuantepec and Salina Cruz).

The larvæ were found in tree-holes on two occasions, but only females emerged, and the locality has not been revisited. Without the male, the relationships remain uncertain. The adult is apparently a *Finlaya;* but the larva is aberrant in structure for such a location.

AËDES (FINLAYA) MEDIOVITTATUS (Coquillett)

STEGOMYIA MEDIOVITTATA Coquillett, Can. Ent., xxxviii, 60, 1906.
AËDES UNCATUS Grabham, Can. Ent., xxxix, 25, 1907.
Gymnometopa mediovittata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 214, 1911.
Aëdes mediovittata Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 821, 1917.
Aëdes (Gualteria) mediovittata Dyar, Ins. Ins. Mens., vi, 79, 1918.
Aëdes (Finlaya) mediovittata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 420, 1925.

Female—Proboscis slender, black. Palpi with white tip and white ring. Occiput with a straight line of silvery scales in the middle, black on either side of it, mottled with white below. Prothoracic lobes with a line of silver scales. Mesonotum with the integument yellow, covered with dark brown scales; a median narrow silvery line to antescutellar space, and double line surrounding the space; a subdorsal narrow golden line the whole length; a lateral broken silvery line; pleuræ and coxæ with patches of silvery scales. Abdomen black with lunate basal segmental yellowish white bands and lateral silvery spots; venter straw-yellow with scattered black specks. Legs black, femora with a white line the whole length and white tips; tibiæ with a white speck in the middle, larger on hind legs; tarsi with white spots at base of first two joints on front and mid legs, on the hind legs all the joints white-marked at base, the fourth and fifth white except at their tips. Wing-scales narrow, dark brown.

Male—Coloration of the female. Hypopygium (Plate LVI, Fig. 182): Side-piece moderate, conical, the outer half within with long fine hairs; at extreme base within a long, stout spine from an elevated tubercle. Claspette stem long and slender, curved, the filament not as long as it, rather broadly sickle-shaped. Clasper small, uniform, the long terminal spine more than half as long as it. Tenth sternites large, the tip thickened and with sharp, laterally directed tooth. Tenth sternites very small, conical, each with two long hairs.

Larva (Plate LVI, Fig. 182)—Head rounded, not bulging on the sides; antennæ rather long, slender, smooth, with a tuft near the middle. Head-hairs single, the lower pair low down on the face (as in *Howardina*), the intermediate tufts multiple but short, anteantennal tuft in two. Lateral

comb of the eighth segment of six large scales. Air-tube two and a half times as long as wide, the pecten long, reaching near the middle, curved in spiral form, followed by a single hair. Anal segment longer than wide, the plate small, reaching the middle of the side, spined behind; ventral brush posterior, on either side of it a triangular chitinization (as in *Howardina*); dorsal tuft a six-haired and a four-haired brush on each side; lateral tuft large, in three or five. Anal gills shorter than the segment, pointed.

The Antilles, the Virgin Islands, Venezuela.

The larvæ occur in the water in tree-holes, occasionally in artificial receptacles. This species is intermediate between *Finlaya* and *Howardina*. The structure of the claws of the female and the male hypopygium places it in the former; the coloration of the adult and the structure of the larva in the latter. The occurrence of the species on the mainland has been verified by the receipt of a pair from Dr. M. Núñez Tovar.

Subgenus HOWARDINA Theobald

AËDES (HOWARDINA) FULVITHORAX (Lutz)

HÆMAGOGUS FULVITHORAX Lutz in Bourroul, Mosq. do Braz., 66, 1904.
TÆNIORHYNCHUS PALLIATUS Coquillett, Can. Ent., xxxviii, 61, 1906.
Gualteria fulvithorax and *Tæniorhynchus palliatus* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 150 and 196, 1911.
Aëdes fulvithorax Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 844, 1917.
Aëdes (Howardina) fulvithorax Dyar, Ins. Ins. Mens., vi, 80, 1918.
Aëdes (Howardina) fulvithorax Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 373, 1925.

Female—Proboscis long, slender, black. Occiput with golden scales and a black spot on each side. Mesonotum with pale integument, covered with dark golden scales; a paired dark line more or less distinct on each side of antescutellar space; pleuræ and coxæ with patches of silvery scales. Abdomen black, with median and lateral basal segmental silvery patches; venter yellowish, the posterior parts of the segments black-banded, the sixth, seventh, and eighth segments broadly banded and projecting ventrally. Legs black, the femora with silvery tips; first hind tarsal joint narrowly white-ringed at base. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LVI, Fig. 183): Side-piece moderate, conically tapered; a small conical lobe at base, normally setose with a single stout apical seta. Clasper thick, uniform, with long terminal spine, half as long as itself. Tenth sternites narrow, the thickened margin alone showing, the terminal tooth laterally directed. Ninth tergites small, with some five stout setæ irregularly distributed.

Larva (Plate LVI, Fig. 183)—Head rounded, slightly bulging at the sides; antennæ rather long, slender, a hair near the middle. Head-hairs single, the lower pair low down, with small stellate additional tufts between. Lateral comb of the eighth segment of about eighteen large scales in an irregular double row. Air-tube two and a half times as long as wide, the pecten not reaching the middle, followed by a three-haired tuft. Anal segment longer than wide, the plate reaching below the middle of the side; ventral brush posterior, with a small angular chitinization on each side. Dorsal tuft a long hair and four-haired brush on each side, lateral tuft probably multiple

(missing in the material, but leaving a large insertion). Anal gills twice as long as the segment, large, inflated.

Trinidad, Surinam, Venezuela.

The larvæ occur in the water in tree-holes. Dr. Núñez T. sent me a specimen from Venezuela, which was unfortunately destroyed in transit. The determination is intrinsically probable, however.

AËDES (HOWARDINA) SEXLINEATUS (Theobald)

STEGOMYIA SEXLINEATA Theobald, Mon. Culic., i, 308, 1901.

Gymnometopa sexlineata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 212, 1911.

Aëdes sexlineata Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 847, 1917.

Aëdes (Howardina) sexlineata Dyar, Ins. Ins. Mens., vi, 73, 1918.

Aëdes (Howardina) sexlineata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 367, 1925.

Female—Proboscis rather long and slender, black. Occiput with three narrow silvery white lines, separated by black, mottled with whitish below. Prothoracic lobes with a silvery line. Mesonotum black-scaled, with six narrow yellowish silvery lines, a little curved, four of them running back to the scutellum; pleuræ and coxæ with patches of silvery white scales. Abdomen black with yellowish white basal segmental lunate bands, and median lateral curved silvery white marks; venter with the segments yellowish white basally, broadly black apically, the posterior segments projecting ventrally. Legs black, femora with a white spot on the outer side joined to base by a streak; tibiæ with a white line within; tarsi with white rings at the bases of the first two joints on fore legs, first three joints on mid and hind legs, the rings broadest on the hind pair. Wing-scales narrow, black.

Male—Unknown.

Larva—Unknown.

Trinidad and Venezuela.

The species frequents high and hilly regions. The larva is said to breed in the water in the leaf-bases of "Spanish bayonet," but neither males nor larvæ have reached me.

AËDES (HOWARDINA) QUADRIVITTATUS (Coquillett)

CULEX QUADRIVITTATUS Coquillett, Can. Ent., xxxiv, 293, 1902.

Aëdes quadrivittatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 852, 1917.

Aëdes (Howardina) quadrivittatus Dyar, Ins. Ins. Mens., vi, 73, 1918.

Aëdes (Howardina) quadrivittatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 369, 1925.

Female—Proboscis moderate, uniform, black. Occiput with three golden lines, separated by black, golden-shaded below. Prothoracic lobes with a golden line. Mesonotum black-scaled, with four somewhat curved, narrow, golden lines running the whole length; the subdorsal line is shaded anteriorly, and there is a golden shade before the wing-base; pleuræ and coxæ with patches of yellow-silvery scales. Abdomen black, with median segmental lateral silvery patches; venter with the segments yellowish at base, broadly black apically, the posterior segments projecting ventrally. Legs black, femora with silvery tips; first two tarsal joints on fore legs and first three on

mid and hind legs with white basal rings, broadest on the last pair. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium: Side-piece moderate, conically tapered; a slight but long elevation at base with a stout seta at its outer angle, preceded by three coarse ones and several fine ones basally. Clasper slightly swollen on the basal two-thirds, the terminal spine long, but not over one-third the length of the clasper. Tenth sternites narrow, thick, the tip roundedly curved, with laterally projecting tooth. Ninth tergites a low irregular chitinized ridge with three stiff setæ, one or two setæ preceding on the membrane.

Larva—Unknown.

Guatemala, Costa Rica, Panama, Colombia, Venezuela.

This is a high-altitude species. Chaculá, Guatemala, 6,600 feet (G. Eisen); Cartago, Costa Rica, 1,500 meters (C. Picado); Boquete, Chiriqui Province, Panama (J. Zetek); Bogota, Colombia (Fr. Appolinaire-Marie); Sierra Nevada, Venezuela, 9,000 feet (E. P. de Bellard). The larva presumably lives in the water in the leaf-bases of Bromeliaceæ, but no positive data are before me, the Picado correspondence not being discoverable.

AËDES (HOWARDINA) ARGYRITES Dyar and Núñez Tovar

AËDES (HOWARDINA) ARGYRITES Dyar and Núñez Tovar, Ins. Ins. Mens., xiv, 190, 1927.

Female—Proboscis black (broken). Occiput with a straight silvery white line in the middle, black on each side, the sides mottled with black and white. Mesonotum blackish brown-scaled, a broad silver stripe on each side from the root of the wing to anterior angle; medianly are two faint, narrow, dotted golden lines running three-fourths, supplemented behind by a single silvery line; a second pair of golden lines, posteriorly only; pleuræ and coxæ with patches of silver scales. Abdomen black, with basal segmental dorsal yellowish and lateral silvery spots; venter straw yellow, the posterior segments apically broadly black-banded and projecting ventrally. Legs black; mid tarsi with a white ring at base of first joint, hind tarsi with broad white rings at bases of first and second joints (third to fifth missing in the specimen). Wing-scales narrow, black.

Male—Unknown.

Larva—Unknown.

Venezuela.

Dr. Núñez T. sent in a single female which was described under the above name.

AËDES (HOWARDINA) WHITMOREI Dunn

AËDES WHITMOREI Dunn, Proc. Ent. Soc. Wash., xx, 128, 1918.

Aëdes (Howardina) whitmorei Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 375, 1925.

Female—Proboscis rather long, slender, black. Palpi with a white tip. Occiput with a narrow white line, black on each side, then a broader white line, black again, and some white on the eye-margin below. Mesonotum black-scaled; two narrow golden lines running the whole length, two more on the posterior half of mesonotum, each subdorsal; a silvery line on prothoracic lobe; two rounded silver spots on the edge of the mesonotum combine with the silvery patches on pleuræ and coxæ to give a general spotted effect. Abdomen black, the segments with basal segmental silvery white

lunate patches and median lateral silvery spots; venter with the segments partly pale at base, broadly black apically, the posterior segments projecting ventrally. Legs black, the femora with a white spot at outer third, and a silvery tip; fore tarsi without markings, mid with white rings at bases of first two joints, hind with three white rings, the last two joints black. Wing-scales narrow, black.

Male—Undescribed.

Larva—Undescribed.

Colombia (Muzo), Venezuela (Ocumare de la Costa).

Specimens have lately been taken at Ocumare de la Costa, July 5, 1927, by Dr. M. Núñez Tovar.

Bred from larvæ said to have been found in a pool at Emerald Mines, Muzo, Colombia. Major Dunn, who collected them, had one male, but he did not give it to me, so a description of the hypopygium must await a later opportunity.

AËDES (HOWARDINA) DOMINICII (Rangel and Romero Sierra)

STEGOMYIA DOMINICII Rangel and Romero Sierra, Thèse de Doct. du Dr. Romero, Caracas, 1907.

Stegomyia dominicii Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 134, 1911.

Aëdes (Howardina) dominici Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 376, 1925.

Female—Proboscis much longer than the palpi, black, pale at the tip. Occiput with three distinct white lines, separated by black, a white spot on each side. Mesonotum black, prothoracic lobes touched with white; two white lines running the whole length; laterally a white line, expanded anteriorly, hardly separated on the front margin from the two median lines, also running back to the scutellum. Scutellum with white scales, large and flat on the median lobe. Abdomen black, with basal segmental lunate cream-colored patches and lateral median snowy white spots. Legs black; a white spot on outer third of femora; tarsi white-ringed (exact joints not mentioned).

Male—Unknown.

Larva—Unknown.

Venezuela.

This species is not before me; the description is compiled from the original one. This must be close to *quadrivittatus* Coq., but the lines are said to be white (silvery?), whereas they are distinctly golden in the mentioned species. This may be an earlier name for *whitmorei*, in case the lateral mesonotal silver spots were confused with those on the pleuræ and so not separately mentioned by Rangel and Romero S., although there are other discrepancies.

AËDES (HOWARDINA) ARBOREALIS Bonne-Wepster and Bonne

AËDES (HOWARDINA) ARBOREALIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 178, 1920.

Aëdes (Howardina) arborealis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 377, 1925.

Female—Proboscis moderate, slender, black. Occiput golden-scaled, with two black spots on each side. Mesonotum black, sparsely dusted with golden scales in four confused lines running the whole length, although

scarcely discernible as such, relieving four black patches posteriorly. Abdomen black, with basal segmental silvery patches on the posterior segments and triangular patches on the sides, which are median, but one angle touches the base; venter golden, the posterior segments apically black-banded and projecting. Legs black, femora with silvery tips, first tarsal joint white-ringed at the base. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LVI, Fig. 184): Side-piece moderate, conically tapered; a slight but long elevation at base, with a stout seta at its lower angle, preceded by four or five coarse ones. Clasper rather thick, scarcely swollen basally, the spine long but less than one-third the length of the clasper. Tenth sternites narrow, thick, the tip roundedly curved, with laterally projecting tooth. Ninth tergite a low irregularly chitinized ridge with three stiff setæ, a fourth less stout, somewhat detached or on the membrane.

Larva (Plate LVI, Fig. 184)—Head rounded, scarcely bulging at the sides; antennæ slender, a hair near the middle. Head-hairs, upper single, lower double, anteantennal tuft small, multiple. Lateral comb of the eighth segment of some twenty-five scales in a triangular patch. Air-tube about two and a half times as long as wide, the pecten reaching the basal third, followed distantly by a two-haired tuft. Anal segment longer than wide, the plate reaching very near the ventral line; ventral brush posterior with a line of chitin on each side; dorsal tuft a hair and four-haired brush on each side; lateral tuft in two, very stout. Anal gills short, rounded.

Surinam.

The larvæ were found in a tree-hole.

AËDES (HOWARDINA) SEPTEMSTRIATUS Dyar and Knab

AËDES SEPTEMSTRIATUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 10, 1907.

Aëdes septemstriatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 846, 1917.

Aëdes (Howardina) septemstriatus Dyar, Ins. Ins. Mens., vi, 73, 1918.

Aëdes (Howardina) septemstriatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 366, 1925.

Aëdes (Howardina) septemstriatus Dyar, Ins. Ins. Mens., xiii, 148, 1925.

Aëdes (Howardina) septemstriatus Dyar, Ins. Ins. Mens., xiv, 112, 1926.

Female—Proboscis moderate, slender, black. Occiput golden-scaled with a small black spot each side of vertex. Mesonotum dark brown-scaled; a narrow median golden line running the full length; close to it on either side a golden line runs half way back; beyond this a broader golden line runs from the middle back, overlapping the anterior lines slightly at the middle of mesonotum; a lateral golden shade, sinuate and broken at its posterior third; pleuræ and coxæ with yellowish silvery scale patches. Abdomen black, with faint basal segmental lunate yellowish patches; lateral silver spots touching base at one angle; venter golden, the posterior segments black-banded apically and projecting ventrally. Legs black, femora with white apices; tarsi with a white ring at the base of the first joint. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LVII, Fig. 185): Side-piece rather narrow, conical; a small pointed lobe at base bearing a stout seta at tip and four or five short ones on the side. Clasper short, slightly swollen on basal two-thirds, the spine not one-third the length of

the clasper. Tenth sternites large, one margin thickened, recurved at tip, the tooth projecting laterally. Ninth tergites conical, low, irregular, approximate, with about four spines. Mesosome broad, quadrate, well chitinized and conspicuous.

Larva—Unknown.

Nicaragua and Panama.

The larvæ are found in the water in tree-holes, but no specimens have reached me. This species is found at low elevations on the Atlantic side of the countries mentioned.

AËDES (HOWARDINA) IOLIOTA Dyar and Knab

AËDES IOLIOTA Dyar and Knab, Ins. Ins. Mens., i, 77, 1913.
Aëdes (Howardina) ioliota Dyar, Ins. Ins. Mens., vi, 73, 1918.
Aëdes (Howardina) ioliota Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 371, 1925.

Female—Proboscis rather long, slender, black. Occiput with a median golden line, dark brown on each side, the sides variegated with silver scales. Mesonotum brown, thinly scaled; two narrow golden lines running back two-thirds, a single silver line behind; narrow subdorsal posterior golden line from the middle back; a narrow, partly silvery line along the margin; pleuræ and coxæ with patches of silvery scales. Abdomen black, the sides with basal segmental silvery patches; venter dull golden, the posterior segments broadly black-banded apically and projecting ventrally. Legs black, the first three tarsal joints white-banded at the base, the hind legs with the fifth joint white, except at tip. Wing-scales narrow, dark brown.

Male—Unknown.

Larva—Unknown.

Trinidad.

The larvæ were found in water in a tree-hole by Mr. F. W. Urich, who originally sent in larval skins. These, unfortunately, can not be found at the present writing.

AËDES (HOWARDINA) ALBONOTATUS (Coquillett)

GYMNOMETOPA ALBONOTATA Coquillett, Proc. Ent. Soc. Wash., vii, 183, 1906.
Gymnometopa albonotata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 213, 1911.
Aëdes albonotata Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 853, 1917.
Aëdes (Howardina) albonotata Dyar, Ins. Ins. Mens., vi, 80, 1918.
Aëdes (Howardina) albonotata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 369, 1925.

Female—Proboscis rather long, slender, black. Occiput with a median golden line, dark brown on each side, the sides variegated with silver scales. Mesonotum brown, thinly scaled; two narrow silvery lines running back two-thirds, a single silver line behind; narrow posterior subdorsal golden line from the middle back; a narrow silvery line along the margin; pleuræ and coxæ with patches of silver scales. Abdomen black, the sides with basal segmental silvery patches; venter dull golden, the posterior segments broadly black-banded apically and projecting ventrally. Legs black, first tarsal joint white at base on fore legs, two white rings on mid and three on hind, the latter broad. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LVII, Fig. 186): Side-piece moderate, conical; a small cone at base with a single stout seta, with minute hairs on its base. Clasper long, slender, with long terminal spine not one-fourth the length of the clasper. Tenth sternites large, thickened on one margin and tip, with laterally projecting tooth. Ninth tergites small, conical with some seven setæ scattered, some on the membrane as well.

Larva (Plate LVII, Fig. 186)—Head rounded, scarcely bulging at the sides; antennæ slender, with a hair at the middle. Head-hairs low on the face, upper single, lower double, anteantennal tuft in two. Lateral comb of the eighth segment of some twelve scales in a close single row. Air-tube less than twice as long as wide, the pecten reaching the middle, the last tooth inclosing a three-haired tuft. Anal segment longer than wide, the ventral brush sparse, posterior, and with a little triangular plate on each side, a few tufts preceding. Anal plate reaching below the middle of the side, spined on its posterior border. Dorsal tuft a hair and three-haired brush on each side; lateral hair in three, strong. Anal gills longer than the segment, full, rounded.

Antilles, Bahamas, and Venezuela.

The larvæ occur in the water in tree-holes. The species is not often found. Our records are: Santo Domingo (A. Busck); New Providence Island, Bahamas (H. G. Dyar); Guadeloupe, July 1905 (A. Busck), Guamitas, Venezuela, June 20, 1927 (M. Núñez Tovar).

AËDES (HOWARDINA) BUSCKII (Coquillett)

STEGOMYIA BUSCKII Coquillett, Can. Ent., xxxviii, 60, 1906.

Gymnometopa busckii Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 213, 1911.

Aëdes busckii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 860, 1917.

Aëdes (Howardina) busckii Dyar, Ins. Ins. Mens., vi, 80, 1918.

AËDES (HOWARDINA) THAXTERI Dyar and Knab, Ins. Ins. Mens., vii, 8, 1919.

Aëdes (Howardina) busckii and *thaxteri* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 372 and 376, 1925.

Female—Proboscis rather long, slender, black. Occiput with a median golden line, dark brown on each side, the sides variegated with silver scales. Mesonotum brown, thinly scaled; two narrow golden lines running back two-thirds, a single golden line behind; narrow posterior subdorsal golden line from the middle back; a silver marginal line, rather broad and broken into three spots; pleuræ and coxæ with patches of silver scales. Abdomen black, the sides with basal segmental silvery patches; venter dull golden, the posterior segments broadly black-banded apically and projecting ventrally. Legs black, first tarsal joint white at base on fore legs, two white rings on mid, and three on hind, the latter broad. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LVII, Fig. 187): Side-piece moderate, conical; a small cone at base with a single stout seta, with minute hairs on its base. Clasper moderate, stout on basal two-thirds, the terminal spine moderate, about one-eighth the length of clasper. Tenth sternites large, thickened and rounded at tip, the tooth small, laterally directed. Ninth tergites small, each with about three long, very stout spines.

Larva (Plate LVII, Fig. 187)—Head rounded, bulging on the sides; antennæ moderate, with a single hair near the middle. Upper head-hair single, lower double, anteantennal tuft in four. Lateral comb of the eighth segment of about twenty scales in a double row. Air-tube nearly three times as long as wide, the pecten reaching the middle, sparse and open, followed by a three-haired tuft. Anal segment longer than wide, the plate reaching below the middle of the side, spined on its posterior border. Ventral brush posterior, with a triangular chitinization on each side. Dorsal tuft a hair and four-haired brush on each side; lateral hair in four, distinct. Anal gills as long as the segment, rounded.

Lesser Antilles.

The larvæ occur in the fluid in the flower-bracts of *Heliconia,* once in a cacao-shell. I have specimens from Dominica, Guadeloupe, Grenada, and Martinique.

AËDES (HOWARDINA) WALKERI (Theobald)

Culex (Stegomyia?) walkeri Theobald, Mon. Culic., i, 424, 1901.
Howardina walkeri Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 139, 1911.
Aëdes walkeri Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 849, 1917.
Aëdes (Howardina) walkeri Dyar, Ins. Ins. Mens., vi, 80, 1918.
Aëdes (Howardina) walkeri Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 368, 1925.

Female—Proboscis moderate, slender, black. Occiput silvery-scaled, a black spot on each side. Mesonotum dark brown; two golden lines running back two-thirds, followed by a single silver line; subdorsal posterior golden lines from the middle back; a broad, straight, lateral silver stripe; pleuræ and coxæ with patches of silver scales. Abdomen black, with basal segmental silvery spots and larger silvery lateral patches; venter silvery-scaled, the posterior segments broadly black-banded and projecting ventrally. Legs black, femora silvery at tips; hind tarsi with first to third joints broadly ringed with white at base. Wing-scales narrow, black.

Male—Coloration of the female. Hypopygium (Plate LVII, Fig. 188): Side-piece moderate, conical; a small lobe at base bears a seta much longer than it with some small ones on inner aspect. Clasper small, with a terminal spine one-fourth as long as it. Tenth sternites large, thickened at tip and with laterally directed tooth. Ninth tergites linear, each with three long, stout setæ.

Larva (Plate LVII, Fig. 188)—Head rounded, not bulging on the sides; antennæ moderate with a single hair near the middle. Head-hairs low on the face, the upper single, lower in four, anteantennal tuft in five. Lateral comb of the eighth segment of about twelve long scales in a single row. Air-tube about two and a half times as long as wide, the long pecten reaching almost the apex; a three-haired tuft beyond middle of tube. Anal segment longer than wide, the plate reaching well down the sides and with long spines behind. Ventral brush in a quadrangular chitinization, through which the tufts issue by holes. Dorsal tuft a hair and brush on each side; lateral hair in six, distinct. Anal gills slender, about as long as the segment.

Jamaica.

The larvæ live in the water in the leaf-bases of Bromeliaceæ.

AËDES (HOWARDINA) AURITES Theobald

HOWARDINA AUREOSTRIATA Grabham (not Doleschall, not Banks), Can. Ent., xxxviii, 171, 1906.
HOWARDINA AURITES Theobald, Mon. Culic., iv, 216, 1907.
HOWARDINA INEQUALIS Grabham, Can. Ent., xxxix, 25, 1907.
Howardina aurites, aureostriata, and *inequalis* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 140 and 141, 1911.
Aëdes aureostriata and *aurites* Howard, Dyar and Knab, Mosq. No. and Cent. Am. and W. I., iv, 855 and 859, 1917.
Aëdes (Howardina) aurites and *aureostriata* Dyar, Ins. Ins. Mens., vi, 73 and 80, 1918.
Aëdes (Howardina) aureostriata and *aurites* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 370 and 371, 1925.

Female—Proboscis moderate, slender, black. Occiput with a golden line in the middle, black on each side, variegated below. Mesonotum dark brown; two narrow golden lines running back two-thirds, continued by a single golden line; subdorsal golden posterior half-line; a lateral narrow golden line; pleuræ and coxæ with small patches of silvery scales. Abdomen black, with lateral basal segmental silvery patches, the most posterior of them large and extending dorsally; venter white-scaled, the segments with apical black bands. Legs black, mid tarsi with two white rings, the hind with three, on first to third tarsals.

Male—Coloration of the female. Hypopygium (Plate LVIII, Fig. 189): Side-piece moderate, conical; a high basal lobe with a strong seta on the tip reaches three-fourths the length of side-piece. Clasper slender, not as long as side-piece, with long terminal spine, over one-fourth the length of clasper. Tenth sternites large, thickened at tip, and with stout laterally directed tooth. Ninth tergites nearly linear, with three long, stout spines.

Larva (Plate LVIII, Fig. 189)—Head rounded, slightly bulging on the sides, the antennæ rather long, slender, a hair near the middle. Upper head-hair in two, lower in ten, anteantennal tuft in five. Lateral comb of the eighth segment of about twelve short scales in a curved row. Air-tube six times as long as wide, the long pecten reaching the middle, followed by a two-haired tuft. Anal segment longer than wide, the plate reaching below the middle of the side, with very long spines on its posterior border. Ventral brush posterior, with chitinized plate about the origins of the tufts. Dorsal tuft a long hair and six-haired brush on each side; lateral hair single, rather long. Anal gills shorter than the segment, pointed.

Jamaica.

The larvæ live in the water in the leaf-bases of Bromeliaceæ, and have been found also in tree-holes.

Subgenus AËDIMORPHUS Theobald

AËDES (AËDIMORPHUS) VEXANS (Meigen)

CULEX VEXANS Meigen, Syst. Beschr. Eur. Zweifl. Ins., vi, 241, 1830.
?CULEX PARVUS Macquart, Suit. a Buffon, i, 36, 1834.
CULEX MALARIÆ Grassi, Atti Ac. Lincei, vii, 168, 1898.
CULEX SYLVESTRIS Theobald, Mon. Culic., i, 406, 1901.
CULEX NOCTURNUS Theobald, Mon. Culic., iii, 159, 1903.
CULEX MONTCALMI Blanchard, Les Moust., 307, 1905.
?CULEX ARABIENSIS Patton, Journ. Bomb. Nat. Hist. Soc., xvi, 633, 1905.
CULICADA NIPPONII Theobald, Mon. Culic., iv, 337, 1907.
CULICADA MINUTA Theobald, Mon. Culic., iv, 338, 1907.

CULEX STENŒTRUS Theobald, Mon. Culic., iv, 395, 1907.
CULICADA ERYTHRUSOPS Theobald, Mon. Culic., v, 229, 1910.
CULEX PSEUDOSTENŒTRUS Theobald, Mon. Culic., v, 343, 1910.
Aëdes sylvestris Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 694, 1917.
AËDES EUOCHRUS Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 716, 1917.
Aëdes (Ecculex) vexans Dyar, Ins. Ins. Mens., v, 103 and 116, 1917.
Aëdes vexans Dyar, Ins. Ins. Mens., vii, 28, 1919.
Aëdes vexans Martini, Beih., Arch. f. Schiffs-u. Tropenkr., xxiv, 136, 1920.
Aëdes vexans Dyar, Ins. Ins. Mens., viii, 18, 1920.
Aëdes (Ecculex) vexans Dyar, Ins. Ins. Mens., viii, 171, 1920.
Aëdes (Ecculex) vexans Dyar, Ins. Ins. Mens., viii, 183, 1920.
Aëdes vexans Dyar, Ins. Ins. Mens., ii, 199, 1920.
Aëdes (Ecculex) vexans Edwards, Bull. Ent. Res., xii, 322, 1921.
Aëdes (Ecculex) vexans Dyar, Trans. Royal, Can. Inst., Toronto, xiii,, pt. 1, 114, 1921.
Aëdes (Ecculex) vexans Dyar, Proc. U. S. Nat. Mus., lxii, 91, 1922.
Aëdes vexans Dyar, Ins. Ins. Mens., x, 87, 1922.
Aëdes vexans Dyar, Ins. Ins. Mens., xi, 44, 1923.
Aëdes vexans Dyar, Ins. Ins. Mens., xii, 45, 1924.
Aëdes (Aëdimorphus) vexans Dyar and Shannon, Ins. Ins. Mens., xiii, 77, 1925.
Aëdes vexans Hearle, Nat. Res. Counc., Rept. 17, 28, 1926.
Aëdes (Aëdimorphus) vexans Freeborn, Mosq. of Calif., 410, 1926.

Female—Proboscis moderate, a little enlarged at tip, black, sometimes grayish underneath. Occiput with brown scales and erect pale bristles. Mesonotum dark brown-scaled, sometimes grayish on the sides and over antescutellar space. Abdomen black, the segments with basal whitish bands, which tend to be broken in the middle and form paired quadrate spots, sometimes a broken white line down the middle; venter grayish white-scaled, a row of median segmental black blotches more or less developed. Legs dark brown, the tarsal joints with narrow white rings at their bases. Wing-scales narrow, all dark.

Male—Coloration of the female. The palpi have white spots at the bases of the joints and middle of long joint. Hypopygium (Plate LVIII, Fig. 190): Side-piece large, curved, conically tapered; at the base a rounded quadrate lobe bearing many rather short setæ, no one stronger than the others. Clasper long, broad, running to a pointed tip, the spine stout, far subapical, articulated. Tenth sternites elliptical, with laterally directed tooth. Ninth tergites undeveloped. Mesosome of two pairs of hooks, one broad, the other pointed.

Larva (Plate LVIII, Fig. 190)—Head rounded, bulging at the sides; antennæ large, not as long as head, spinulated, narrowed and infuscated outwardly, a tuft near the middle. Upper head-hair in three, lower in two, anteantennal tuft multiple. Lateral comb of the eighth segment of about ten scales in an irregular double row. Air-tube three times as long as wide, the pecten not reaching the middle, the last two teeth stout and detached, followed by a small three-haired tuft. Anal segment about as wide as long, the plate reaching near the ventral line; ventral brush with preceding tufts nearly to the base. Dorsal tuft a hair and brush on each side; lateral hair single, small. Anal gills longer than the segment, slenderly blade-shaped.

Europe, Asia, North America, the Philippines, etc.

The larvæ are found in ground-pools filled by rain or flood, and prefer open sunlit pools. The species is not found in the forested Canadian Zone,

but inhabits all the country south of that to the Mexican border. It does not occur in the American tropics, although found in the Philippines. This is one of the commonest and most persistent biters, but is an outdoor species, not entering houses.

Subgenus AËDES Meigen

AËDES (AËDES) CINEREUS Meigen

?CULEX CILIARIS Linnæus, Syst. Nat., Ed. X, i, 1002, 1767.
AËDES CINEREUS Meigen, Syst. Beschr. Eur. Zweifl. Ins., i, 13, 1818.
AËDES RUFUS Gimmerthal, Bull. Soc. Imp. Nat. Mosc., xviii, 295, 1845.
CULEX NIGRITULUS Zetterstedt, Dipt. Scand., ix, 3459, 1850.
AËDES FUSCUS Osten Sacken, Bull. U. S. Geol. Surv., iii, 191, 1877.
AËDES LEUGOPYGUS Eysell, Abh. Ver. Naturk. Kassel, xlviii, 285, 1903.
CULEX PALLIDOHIRTA Grossbeck, Can. Ent., xxxvii, 359, 1905.
CULEX PALLIDOCEPHALA Theobald, Mon. Culic., v, 612, 1910.
Aëdes cinereus Dyar, Ins. Ins. Mens., v, 16, 1917.
Aëdes cinereus Dyar, Ins. Ins. Mens., v, 98, 1917.
Aëdes cinereus Dyar, Ins. Ins. Mens., vii, 29, 1919.
Aëdes fuscus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 729, 1917.
Aëdes cinereus Martini, Beih., Arch. f. Schiffs-u. Tropenk., xxiv, 93, 1920.
Aëdes cinereus Dyar, Ins. Ins. Mens., viii, 18, 1920.
Aëdes (Aëdes) cinereus Dyar, Ins. Ins. Mens., viii, 172, 1920.
Aëdes (Aëdes) cinereus Edwards, Bull. Ent. Res., xii, 323, 1921.
Aëdes (Aëdes) cinereus Dyar, Trans. Royal Can. Inst., Toronto, xiii, Pt. 1, 16, 1921.
Aëdes (Aëdes) cinereus Dyar, Proc. U. S. Nat. Mus., lxii, 93, 1922.
Aëdes (Aëdes) cinereus Dyar, Ins. Ins. Mens., x, 86, 1922.
Aëdes (Aëdes) cinereus Dyar, Ins. Ins. Mens., xi, 44, 1923.
Aëdes (Aëdes) cinereus Dyar, Ins. Ins. Mens., xii, 45, 1924.
Aëdes cinereus fuscus and *cinereus* HEMITELEUS Dyar, Ins. Ins. Mens., xii, 179, 1924.
Aëdes cinereus Hearle, Nat. Res. Counc., Rept. No. 17, 41, 1926.
Aëdes (Aëdes) cinereus hemiteleus Freeborn, Mosq. of Calif., 406, 1926.

Female—Proboscis moderate, stout, black. Occiput with flat black scales, two white patches on each side. Mesonotum with dark brown scales; pleuræ and coxæ with small patches of whitish scales. Abdomen black, the segments with basal triangular segmental whitish spots, generally joined as a lateral line, but sometimes separated, and there may be dorsal white spots or even small bands; venter whitish-scaled. Legs black, the femora with a few white apical scales. Wing-scales narrow, all dark.

Male—Palpi short as in the female, the coloration the same. Hypopygium (Plate LVIII, Fig. 191): Side-piece short and stout, tapering sharply; a long finger-shaped lobe at the base, bearing three hairs, the terminal one slightly stouter, a small outer lobe divaricate from the first. Clasper inserted subapically, forked, the inner lobe short, broadly ovate, with a few delicate setæ at tip; outer lobe long, slenderly ligulate, curved, its tip shortly forked into two granular branches which are nearly alike. Tenth sternites small, horn-like, uniformly thickened, curved. Mesosome of two pairs of thick appendages of equal length and doubly curved. Ninth tergites thick cones bearing many entirely normal setæ.

Larva (Plate LVIII, Fig. 191)—Head rounded, bulging at the sides, the antennæ large, as long as the head, spinulated and with a tuft near the middle. Head-hairs and anteantennal tuft all multiple, in tufts of five to twelve. Lateral comb of the eighth segment of about ten scales in a double row. Air-tube four times as long as wide, a little tapered outwardly; pec-

ten reaching beyond the middle, the last three teeth stout and widely detached, followed by a small three-haired tuft. Anal segment longer than wide, the plate reaching near the ventral line; ventral brush with small tufts preceding nearly to the base. Dorsal tuft a long hair and brush on each side; lateral hair double, minute. Anal gills twice as long as the segment, narrowly lanceolate.

Europe, Asia, North America.

The larvæ occur in ground-pools, both early spring pools and those filled by rain. They are the last inhabitants of the pools, remaining after all other larvæ have emerged, and often perish from the drying of the pools. The species ranges through the Canadian Zone and follows forests to the south, having been taken in Arkansas. The adults are never numerous, frequent forest, and do not enter houses, though they bite freely with the other sylvan species.

Two races may be distinguished in America, *cinereus fuscus* throughout the country, except in the California mountains, where *cinereus hemiteleus* occurs, distinguished by the striped mesonotum. *Cinereus cinereus* is European.

Subgenus STEGOMYIA Theobald

AËDES (STEGOMYIA) ÆGYPTI (Linnæus)

CULEX ÆGYPTI Linnaeus, Hass. Pal. Reise, 470, 1762. Egypt.
CULEX ARGENTEUS Poiret, Journ. de Phys., xxx, 245, 1787.
CULEX FASCIATUS Fabricius (not Müller), Syst. Antliat., 36, 1805. W. Ind.
CULEX CALOPUS Meigen, Syst. Beschr. Eur. Zweifl. Ins., i, 3, 1818. Port.
CULEX MOSQUITO Robineau-Desvoidy, Mém. Soc. Nat. Hist. Paris, iii, 407, 1827. Cuba
CULEX FRATER Robineau-Desvoidy, Mém. Soc. Nat. Hist. Paris, iii, 407, 1827. W. Ind.
CULEX TÆNIATUS Wiedemann, Ausser. Zweifl. Ins., i, 10, 1828. Savannah. (N.A.)
CULEX KOUNOUPI Brullé, Exp. Sci. do Morée, Zool., iii, 289, 1836. Greece
(?) CULEX NIVEUS Eichwald, Reise Casp. Kauk., ii, 183, 1837.
CULEX ANNULITARSIS Macquart, Webb, and Berth., Hist. Nat. Iles Can., ii, Ins. 99, 1839. L'île de Fer.
CULEX VIRIDIFRONS Walker, List Dip. Brit. Mus., i, 3, 1848. Loc.?
CULEX EXCITANS Walker, List Dip. Brit. Mus., i, 4, 1848. Georgia
CULEX FORMOSUS Walker, List Dip. Brit. Mus., i, 4, 1848. Sierra Leone
CULEX INEXORABILIS Walker, List Dip. Brit. Mus., i, 4, 1848. W. Afr.
CULEX EXAGITANS Walker, Ins. Saund., Dipt., 430, 1856. Braz.
CULEX IMPATIBILIS Walker, Proc. Linn. Soc. Zool., iv, 91, 1860. Celebes
CULEX ZONATIPES Walker, Proc. Linn. Soc. Zool., v, 229, 1861. New Guinea
CULEX BANCROFTI Skuse, Proc. Linn. Soc. N. S. W. (2), lii, 1740, 1889. Australia
CULEX ELEGANS Ficalbi, Bull. Soc. Ent. Ital., xxi, 95, 1889. Loc.?
CULEX ROSSII Giles, Journ. Trop. Med., ii, 64, 1899. India
STEGOMYIA FASCIATA LUCIENSIS Theobald, Mon. Culic., i, 297, 1901. Brit. Guian.
STEGOMYIA FASCIATA QUEENSLANDENSIS Theobald, Mon. Culic., i, 297, 1901. Austr.
STEGOMYIA NIGERIA Theobald, Mon. Culic., i, 303, 1901. W. Africa
STEGOMYIA FASCIATA PERSISTANS Banks, Phil. Journ. Sci., i, 996, 1906. Philip.
CULEX ANGUSTE-ALATUS Becker, Mitt. Zool. Mus. Berl., iv, 79, 1908. Teneriffe
CULEX ALBOPALPOSUS Becker, Mitt. Zool. Mus. Berl., iv, 80, 1908. "
Stegomyia calopus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 135, 1911. Venez.
DUTTONIA ALBOANNULIS Ludlow, Psyche, xviii, 132, 1911. Philipp.?
Aëdes argenteus Knab, Ins. Ins. Mens., iv, 60, 1916.
Aëdes calopus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 824, 1917.
Stegomyia calopus Lutz, Mem. Inst. O. Cruz, x, 86, 1919.
Aëdes (Stegomyia) fasciatus (calopus) Martini, Beih., Arch. f. Schiffs-u. Tropenk., xxiv, 144, 1920.
STEGOMYIA FASCIATA ATRITARSIS Edwards, Bull. Ent. Res., x, 129, 1920.

Aëdes (Stegomyia) ægypti Dyar, Ins. Ins. Mens., viii, 204, 1920.
Aëdes (Stegomyia) argenteus (fasciata) Edwards, Bull. Ent. Res., xii, 325, 1921.
Aëdes (Stegomyia) ægypti Dyar, Proc. U. S. Nat. Mus., lxii, 94, 1922.
Aëdes (Stegomyia) ægypti Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 380, 1925.
Aëdes (Stegomyia) ægypti Dyar, Ins. Ins. Mens., xiii, 23, 1925.
Aëdes (Stegomyia) ægypti Dyar, Ins. Ins. Mens., xiii, 30, 1925.
Aëdes (Stegomyia) ægypti Dyar and Shannon, Ins. Ins. Mens., xiii, 75, 1925.
Aëdes (Stegomyia) ægypti Dyar, Ins. Ins. Mens., xiii, 216, 1925.
Aëdes (Stegomyia) ægypti Dyar, Ins. Ins. Mens., xiii, 148, 1925.
Aëdes ægypti Siler, Hall, and Hitchens, Dengue (Manila, P. I.), 309, 1926.
Aëdes argenteus Connal, Bull. Ent. Res., xviii, 5, 1927.
Aëdes ægypti Dunn, Bull. Ent. Res., xviii, 20, 143, 1927.

Female—Proboscis rather long, slender, uniform, black. Occiput black-scaled, a white stripe on the vertex and two white spots on the side, a white margin to the eyes; clypeus, tori, and tips of palpi with white scales. Mesonotum brown-scaled; two narrow median golden lines; a broad, lateral silvery band, forming a rounded arc; silvery scales about antescutellar space and on scutellum; pleuræ and coxæ with patches of silvery white scales. Abdomen black, with dorsal basal segmental lunate white spots and lateral more silvery ones; venter white-scaled, the posterior segments broadly black-banded apically. Legs black, femora with silvery tips; tarsal joints white-ringed at the base, on the hind legs broadly so, the fifth joint all white. Wing-scales narrow, all dark.

Male—The palpi have white rings at the bases of the joints and on the long joint. Otherwise as in the female. Hypopygium (Plate LIX, Fig. 192): Side-piece very short, broadly conical; most of the inner side is occupied by a group of short, stiff hairs. Clasper moderate, narrowed on apical third, with a rather short terminal spine. Tenth sternites large, solid, forming a long projection, with a branch at right angles near base. Ninth tergites undeveloped. Mesosome a large cylinder with spines on the outer margin.

Larva (Plate LIX, Fig. 192)—Head rounded, slightly bulging at the sides; antennæ rather small, slender. Head-hairs all single. Lateral comb of the eighth segment of eight to twelve separate scales, each with central thorn and two shorter side ones. Air-tube about two and a half times as long as wide, the pecten running to the middle, followed by a three-haired tuft. Anal segment wider than long, the plate reaching near the ventral line; ventral brush slight, posterior; dorsal tuft a long hair and two-haired tuft on each side; lateral hair double, slight. Anal gills three times as long as the segment, inflated, rounded, obscurely tracheate.

Warmer regions of Europe, Asia, Africa, Australia, America.

The species is almost wholly domesticated, the larvæ breeding in water in artificial containers about human dwellings. The adults fly by day and are crafty and noiseless in their attacks, coming from behind or underneath. The males swarm indoors, often about a person, in subdued light. The species is not able to stand much cold, and is regularly exterminated in winter in the north, if it happens to find a foothold there during warm seasons.

The species is doubtless a native of Africa, and was brought to America in the early days, perhaps by Columbus himself. In the early days of navigation, with long voyages and water conserved in open wooden receptacles, the species readily bred on board ship, and was carried wherever the vessel

went. In modern shipping this is not the case, as water is no longer kept in open wooden vessels.

This species is the dreaded carrier of yellow fever and dengue fever, its close association with man rendering this possible. As the breeding-places are limited to artificial receptacles, its destruction, when necessary, is a matter of the simplest.

Siler and others recently contend for the American origin of *Aëdes ægypti;* but there are no other *Stegomyia* native to the New World, nor is there anything leading up to this structure in America, whereas the tropics of the Old World contain many other *Stegomyia* and forms leading up to that type of structure. It seems impossible that one species of *Stegomyia* could have developed apart from its congeners and at the same time be existing still among them. The subgenera *Stegomyia, Ædimorphus,* and *Aëdes* are represented by many species in the Old World, in America by only a single species each, and these three species still exist in the Old World. It seems that the historical data adduced by Siler and coworkers are insufficient to offset the conclusions necessitated by distribution.

Genus CULICELLA Felt

THEOBALDIA Neveu-Lemaire (not *Theobaldius* Nevill), C. R. Soc. de Biol. liv, 1331, 1902.
CULICELLA Felt, Bull. 79, N. Y. State Mus., 391c, 1904.
CULISETA Felt, Bull. 79, N. Y. State Mus., 391c, 1904.
THEOBALDINELLA Blanchard, Les Moust., 390, 1905.
PSEUDOTHEOBALDIA Theobald, Mon. Culic., iv, 150, 1907.
CLIMACURA Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 425, 1915.
ALLOTHEOBALDIA Brolemann, Ann. Soc. Ent. France, lxxxviii, 90, 1919.
Culiseta Dyar, Proc. U. S. Nat. Mus., lxii, 25, 1922.
Culiseta Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 484, 1924.

A small genus of rather large mosquitoes inhabiting temperate regions in North America and north Europe and Asia. One species is subboreal. The larvæ inhabit small permanent pools, and not infrequently accommodate themselves to artificial receptacles, such as rain-water barrels. The adults are not troublesome as biters, preferring to attack horses and cattle. The approach of the female is deliberate, and she is easily frightened away. The genus is, in many characters, ancestral to both *Aëdes* and *Culex.* The male hypopygium is insufficient to define subgenera, and I have had recourse to larval characters for the purpose.

The name *Theobaldia,* while not invalidated under the present rules of nomenclature, is too close to *Theobaldius* to be used. I think it sufficient to burden the memory with generic names, without adding thereto the necessity of learning terminations which are similar to the changing sexual terminations of specific names.

TABLE OF SPECIES

ADULT

1. A smaller species, the mesonotum unornamented, the tarsi dark . *melanura* Coquillett
   Larger species with broader wings 2
2. Wing-scales narrow, hair-like; no scales on the cross-veins 3
   Wing-scales broader; scales generally present on the cross-veins 6
3 Tarsal joints narrowly white-ringed at base 4
   Tarsi not white-ringed; wing with indistinct spots at the forked veins, *impatiens* Walker

4. Wings unspotted 5
   Wings distinctly spotted . . . . . *incidens* Thomson
5. Male first tarsal not longer than remaining joints together . . . . . *parodites* Dyar
   Male first tarsal is longer than remaining joints together . . . . . *dyari* Coquillett
6. Tarsi not white-ringed; wings unspotted . . . . . *inornata* Williston
   Tarsi white-ringed at base; wings spotted 7
7. Mid and hind femora with a white ring . . . . . *maccrackenæ* Dyar and Knab
   Femora without white rings . . . . . *alaskaensis* Ludlow

MALE HYPOPYGIUM

1. Mesosome broad, weakly chitinized, not narowed nor notched 2
   Mesosome narrowed, pointed, or broad and with a notch 4
2. Mesosome with small basal plates; a row of long spines on eighth segment, *parodites* Dyar
   Mesosome without basal plates; no row of long spines on eighth segment . . . 3
3. Mesosome quadrately rounded, concrete . . . . . *melanura* Coquillett
   Mesosome divided, forming two blunt columns which curve outward, *dyari* Coquillett
4. Mesosome narrow, crested; tenth sternites with a spined lobe at base, *inornata* Williston
   Mesosome broader; no lobe at base of tenth sternites 5
5. Penultimate segment with a ventral row of spines 6
   Without this structure 7
6. Row of spines long; mesosome long and conical . . . . . *impatiens* Walker
   Row of spines short; mesosome broadly truncate . . . . . *incidens* Thomson
7. Tips of mesosome recurved, stoutly hooked . . . . . *alaskaensis* Ludlow
   Mesosome truncate, with a little notch within . . . . *maccrackenæ* Dyar and Knab

LARVA

1. Antennæ long, the hair-tuft outwardly placed; pecten teeth of the tube not prolonged into setæ 2
   Antennæ small, the hair-tuft weak and at the middle; pecten teeth of air-tube prolonged into setæ *(Culiseta)* 4
2. Air-tube with many small tufts beyond the pecten; lateral comb of the eighth segment of bars in a single row *(Climacura)* . . . . . *melanura* Coquillett
   Air-tube without tufts outwardly; lateral comb of many scales in a triangular patch *(Culicella)* 3
3. Pecten of tube straight, without teeth outwardly . . . . . *dyari* Coquillett
   Pecten of tube oblique, with teeth outwardly . . . . . *parodites* Dyar
4. Ring of anal segment punctured ventrally by the anterior tufts of the ventral brush 5
   Ring of anal segment entire, the tufts following it . . *maccrackenæ* Dyar and Knab
5. Lower head-hair multiple like the upper . . . . . *impatiens* Walker
   Lower head-hair in three or four, upper multiple 6
6. Pecten of air-tube of sharp spines, followed by short weak setæ, *inornata* Williston
   Pecten of the air-tube branched, followed by long strong setæ 7
7. Chitinization of anal segment narrow, widely separated from the barred area of ventral brush . . . . . *incidens* Thomson
   Chitinization of anal segment broad, running close to barred area of brush, *alaskaensis* Ludlow

Subgenus CLIMACURA Howard, Dyar, and Knab

CULICELLA (CLIMACURA) MELANURA (Coquillett)

CULEX MELANURUS Coquillett, Journ. N. Y. Ent. Soc., x, 193, 1902.
Culex melanurus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 453, 1915.
Climacura melanurus Dyar and Knab, Ins. Ins. Mens., v, 182, 1917.
Culex (Climacura) melanurus Dyar, Trans. Royal Can. Inst., Toronto, xiii, Pt. 1, 77, 1921.
Culex (Climacura) melanurus Dyar, Proc. U. S. Nat. Mus., lxii, 24, 1922.

Female—Proboscis moderate, slender, dark brown. Occiput with pale gray scales; mesonotum with narrow reddish brown scales; pleuræ with pale setæ. Abdomen blackish with pale basal segmental bands; venter sordid whitish, the segments with apical dark bands. Legs dark brown. Wing-scales narrowly ovate or broadly linear, all dark.

Male—Coloration of the female. Hypopygium (Plate LX, Fig. 193): Side-piece stout, conical; basal lobe large, conical, bearing many normal setæ, but two or three at the tip are stout. Clasper long, slender, with small terminal spine. Tenth sternites slender, chitinized, with two or three claw-like teeth at tip. Ninth tergites very small, bearing a close row of three or four stout setæ. Mesosome large, conical, truncate at tip.

Larva (Plate LX, Fig. 193)—Head quadrate, transverse. Antennæ longer than head, slender; a large tuft near the tip, after which the shaft is slender; terminal spines long. Head-hairs in tufts. Lateral comb of the eighth segment of many long bar-shaped scales in a straight row. Air-tube long and straight, six times as long as wide or more; a small paired tuft close to base; a double row of pecten running one-third; a single posterior row of twelve small equal tufts. Anal segment longer than wide, ringed by the plate; ventral brush posterior; dorsal tuft a long hair and irregular brush on each side; lateral tuft small, in three. Anal gills not as long as the segment, narrow, pointed.

New Hampshire, New York, New Jersey, North Carolina, South Carolina, Georgia, Florida, Arkansas.

The larvæ live in cold bogs or deep spring-pools of a very permanent nature. The winter is passed as larva in the pools. The species is rare and local, but always to be found in suitable locations. I have no observations on its biting habits.

Subgenus CULICELLA Felt

CULICELLA (CULICELLA) DYARI (Coquillett)

CULEX DYARI Coquillett, Journ. N. Y. Ent. Soc., x, 192, 1902.
CULEX BRITTONI Felt, Ent. News, xvi, 79, 1905.
Aëdes dyari Headlee, Bull. 276, N. J. Agr. Exp. Sta., 94, 1915.
Culex dyari Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 457, 1915.
Culicella dyari Dyar and Knab, Ins. Ins. Mens., v, 183, 1917.
Culicella dyari Dyar, Ins. Ins. Mens., vii, 30, 1919.
Culicella dyari Dyar, Ins. Ins. Mens., viii, 19, 1920.
Culiseta (Culicella) dyari Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 78, 1921.
Culiseta (Culicella) dyari Dyar, Proc. U. S. Nat. Mus., lxii, 25, 1922.
Culicella (Culex) dyari Matheson and Shannon, Ann. Ent. Soc. Amer., xv, 157, 1922.

Female—Proboscis rather short and stout, dark brown. Occiput with many erect dark bristles. Mesonotum with dark brown scales, intermixed

with lines of pale yellow ones; two longitudinal lines and posterior half lines are devoid of vestiture, appearing impressed, reddish; pleuræ and coxæ with dark and pale setæ, and a very few whitish scales. Abdomen black, with basal segmental yellowish bands; venter pale-scaled. Legs dark brown, femora white at tips; tarsi with faint whitish bands at the joints, involving both ends, but the base more distinctly than the apex. Wing-scales narrow, black.

Male—Coloration of the female. The palpi have whitish rings at the bases of the joints and base and apex of the long joint. Hypopygium (Plate LX, Fig. 194): Side-piece stout, conical, about three times as long as wide; basal lobe large, conical, with about five large stout setæ at tip, a few small ones on base. Clasper stout at base, tapering to tip, with very small terminal spine. Tenth sternites narrow, chitinized, with two long divaricate claws at tip, the lower claw being the margin of the thin plate. Mesosome two large sack-like appendages, curved outward, truncate at tip, bulbous and sharply limited at base.

Larva (Plate LX, Fig. 194)—Head large, quadrate; antennæ as long as head, enlarged on basal three-fourths with a large tuft, the part beyond slender. Terminal setæ long. Head-hairs upper in four, lower in two, ante-antennal tuft in six. Lateral comb of the eighth segment of very many scales in a large triangular patch. Air-tube slender and straight, about eight times as long as wide; a paired small tuft at extreme base; sparse pecten on the basal fourth. Anal segment longer than wide, ringed by the plate; ventral brush posterior, but with small tufts preceding to base, piercing the chitin separately; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills longer than the segment, narrow, pointed.

Ontario, New Hampshire, New York, Massachusetts, New Jersey, South Dakota, Alberta, British Columbia, Yukon Territory.

The larvæ occur in cold spring pools in forest, with but somewhat later than the early spring *Aëdes*.

This species is closely related to the European *morsitans* Theobald (*? = flavirostris* Meigen); but the male hypopygium does not completely correspond. It might be considered an American race of *morsitans*, although I judge the specific status best.

CULICELLA (CULICELLA) PARODITES Dyar

CULICELLA (CULICELLA) PARODITES Dyar, new species (here published).

Female—Proboscis rather short and stout, dark brown. Occiput with many erect dark bristles. Mesonotum with dark brown scales, intermixed with lines of pale yellow ones; two longitudinal lines and posterior half lines are devoid of vestiture, appearing impressed, reddish; pleuræ and coxæ with dark and pale setæ, and a very few whitish scales. Abdomen black, with basal segmental yellowish white bands; venter smaller, pale-scaled, with median segmental narrow black bands, V-shaped, the cusps pointing forward. Legs dark brown, femora white at tips; tarsi with faint whitish bands at the joints, involving both ends, but the base more distinctly than the apex. Wing-scales narrow, black.

Male—Coloration of the female. The palpi have whitish rings at the bases of the joints and base and apex of the long joint. Hypopygium (Plate LX, Fig. 195): Side-piece long, conical, about four times as long as wide; basal lobe large, conical, with about three stout setæ at tip and many short ones over base of lobe. Clasper thick at base, tapering outwardly, with

very small terminal spine. Tenth sternites narrow, thickened, the tip forming a long claw, with a little point at its base. Mesosome with paired oblique parameres, a basal plate at the outer corner; from the middle of the paramere an outward curved rod, and outwardly a large membranous cone, formed of two parts whose tips meet in a point. On the posterior margin of the eighth segment about eight setæ are spinose and shortened somewhat.

Larva—Unknown. It is probably similar to that of the European *fumipennis,* and has been so placed in the key.

Saxeville, Wisconsin.

Types, three males and one female. May, June, and July, 1909-10 (B. K. Miller). Probably coextensive in range with *dyari,* but a much rarer species.

This species is closely related to the European *fumipennis* Stephens; but the male hypopygium does not completely correspond.

Subgenus CULISETA Felt

CULICELLA (CULISETA) INORNATA (Williston)

CULEX INORNATUS Williston, U. S. Dep. Agr., Div. Ornith. and Mam., No. Am. Fauna No. 7, 253, 1893.
CULEX MAGNIPENNIS Felt, Bull. 79, N. Y. Sta. Mus., 278, 1904.
Culiseta inornatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 488, 1915.
Culiseta (Culiseta) inornatus Dyar, Proc. U. S. Nat. Mus., lxii, 29, 1917.
Culiseta inornatus Dyar, Ins. Ins. Mens., v, 20, 1917.
Culiseta inornatus Dyar, Ins. Ins. Mens., vii, 32, 1919.
Culiseta (Culiseta) inornatus Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 80, 1921.
Culiseta inornatus Dyar, Ins. Ins. Mens., xi, 45, 1923.
Culiseta inornatus Dyar, Ins. Ins. Mens., xii, 45, 1924.
Culiseta inornatus Hearle, Nat. Res. Counc., Rept. No. 17, 46, 1926.
Theobaldia inornata Freeborn, Mosq. of Calif., 359, 1926.

Female—Proboscis moderate, brown, paler below. Occiput with fine pale scales and erect bristles. Mesonotum brown, mixed with fine pale scales, uniform; pleuræ and coxæ with small pale scales. Abdomen black, with broad segmental basal yellowish bands widening on the sides, more or less diffused posteriorly, the last segment often entirely yellowish; venter pale-scaled. Legs dark brown, mixed with pale scales, especially on femora and tibiæ; femora pale at tip. Wing-scales narrow, dark; the wing is broad, but the cross-veins are only approximately in line.

Male—Palpi largely pale except at the tips of the joints, last joint clubbed; otherwise as in the female. Hypopygium (Plate LXI, Fig. 196): Side-piece stout, conical; basal lobe rather small, above a large excavation, two or three stout setæ at tip, with short hairs on the lobe. Clasper rather short, stout, with small thick terminal claw. Tenth sternites arising from a striated base, narrow, chitinized, the tip somewhat club-shaped, with three teeth. Ninth tergites each a narrow band of chitin with about ten short thick spines. Mesosome two stout rods with subapical point, with a thin crest ending in two points.

Larva (Plate LXI, Fig. 196)—Head rounded, bulging at the sides; antennæ small with a tuft near the middle; head-hairs in multiple tufts. Lateral comb of the eighth segment of many scales in a large triangular patch. Air-tube stout, about three times as long as wide; a large paired tuft near base; pecten of the air-tube of sharp spines, running one-quarter, followed by

rather short, weak, sparse setæ to the outer fourth. Anal segment ringed by the plate, the ventral brush with preceding small tufts to the base, piercing the chitin. Dorsal tuft a long three-haired tuft and a multiple brush on each side; lateral hair double, small. Anal gills shorter than the segment, lanceolate.

Southern Canada and the whole of the United States and Mexican tableland, especially in open and semiarid regions.

The larvæ live in old stagnant permanent pools, and occasionally in artificial receptacles. The eggs are laid in boat-shaped masses on the water as with *Culex*.

CULICELLA (CULISETA) IMPATIENS (Walker)

CULEX IMPATIENS Walker, List Dipt. Brit. Mus., i, 5, 1848.
CULEX PINGUIS Walker, Lord's Nat. in Vanc. and B. C., ii, 337, 1866.
CULEX ABSOBRINUS Felt, Bull. 79, N. Y. Sta. Mus., 391c, 1904.
Culiseta impatiens Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 483, 1915.
Culiseta impatiens Dyar, Ins. Ins. Mens., v, 20, 1917.
Culiseta impatiens Dyar, Ins. Ins. Mens., v, 101, 1917.
Culiseta impatiens Dyar, Ins. Ins. Mens., vii, 32, 1919.
Culiseta impatiens Dyar, Ins. Ins. Mens., viii, 19, 1920.
Culiseta (Culiseta) impatiens Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 81, 1921.
Culiseta impatiens Dyar, Ins. Ins. Mens., x, 87, 1922.
Culiseta (Culiseta) impatiens Dyar, Proc. U. S. Nat. Mus., lxii, 28, 1922.
Culiseta impatiens Dyar, Ins. Ins. Mens., xii, 45, 1924.
Culiseta impatiens Hearle, Nat. Res. Counc., Rept. No. 17, 54, 1926.
Theobaldia impatiens Freeborn, Mosq. of Calif., 361, 1926.

Female—Proboscis rather long and slender, dark brown, the apical third nearly black. Occiput with sparse, pale, hair-like scales and erect bristles. Mesonotum reddish brown-scaled, with little lines of whitish scales; two reddish lines in the integument sometimes visible; pleuræ and coxæ with small whitish scales and pale bristles. Abdomen black, the segments with basal whitish bands; venter yellowish-scaled, peppered with black. Legs dark brown, the femora whitish at tip. Wing-scales hair-like, black; cross-veins in line, the wing broad; scales slightly aggregated at the forks and base of third vein.

Male—Coloration of the female. Hypopygium (Plate LXI, Fig. 197): Side-piece moderate, conical outwardly; basal lobe small, over a large excavation, one stout seta at tip and a number of short ones. Clasper stout at the base, tapering outwardly, with small terminal spine. Tenth sternites large, narrow, strongly chitinized, the tip with one large and several smaller teeth. Mesosome with central large thin-pointed double cone, and a thick appendage on each side, chitinized, an outward tooth near base, the tip transverse club-shaped. Eighth segment with a long row of short closely set spines on the margin.

Larva (Plate LXI, Fig. 197)—Head rounded, bulging on the sides; antennæ small, sparsely spined, a long tuft near the middle. Head-hairs multiple. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube stout, two and a half times as long as wide, pecten reaching the basal fourth, followed by long hairs nearly to tip; a paired tuft near base. Anal segment about as long as broad, ringed by the plate; ventral brush posterior, with small tufts preceding to base, piercing the chitin; dorsal tuft,

a group of three hairs and a brush on each side; lateral hair double. Anal gills shorter than the segment.

Northern forests to Alaska, interior and coast alike; Rocky Mountains to Colorado; Sierras to California.

The adults overwinter, and appear early in spring with overwintering *Anopheles*. As soon as the spring floods settle and permanent forest-pools appear, the eggs are deposited in rafts on the water. So far as known, but one generation occurs. Dark and shaded pools are preferred; I have found the larvæ in large, cool, clear springs.

The species occurs in the United States in the east only in the forests of Maine, New Hampshire, Vermont, and northern New York. In Alaska it is an abundant species below the limit of the Arctic Zone. The females fly after sunset, and, if given a chance, will bite readily. They are, however, not persistent and bloodthirsty, as are the *Aëdes* of the same region.

CULICELLA (CULISETA) INCIDENS (Thomson)

CULEX INCIDENS Thomson, Kongl. Sven. Eug. Resa, vi, Dipt., 443, 1868.
CULEX PARTICEPS Adams, Kans. Univ. Sci. Bull. (2), ii, 26, 1903.
Culiseta incidens Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 478, 1915.
Culiseta incidens Dyar, Ins. Ins. Mens., iv, 49, 1916.
Culiseta (Culiseta) incidens Dyar, Proc. U. S. Nat. Mus., lxii, 27, 1922.
Culiseta incidens Dyar, Ins. Ins. Mens., v, 20, 1917.
Culiseta incidens Dyar, Ins. Ins. Mens., v, 101, 1917.
Culiseta incidens Dyar, Ins. Ins. Mens., vii, 32, 1919.
Culiseta incidens Dyar, Ins. Ins. Mens., viii, 20, 1920.
Culiseta (Culiseta) incidens Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 80, 1921.
Culiseta incidens Dyar, Ins. Ins. Mens., x, 88, 1922.
Culiseta incidens Dyar, Ins. Ins. Mens., xii, 45, 1924.
Culiseta incidens Hearle, Nat. Res. Counc., Rept. No. 17, 48, 1926.
Theobaldia incidens Freeborn, Mosq. of Calif., 355, 1926.

Female—Proboscis rather long and slender, brown, paler below, the apical third black. Occiput with sparse, pale, hair-like scales and erect bristles behind. Mesonotum with dark brown scales and numerous pale yellowish ones, arranged in fine longitudinal lines, often showing paired discal spots; pleuræ and coxæ with yellowish white scales. Abdomen black, with basal segmental white bands with a trace of yellow; venter dull yellowish, the segments more or less faintly banded with black apically. Legs dark brown, femora white at the tips; tarsal joints narrowly and faintly white-marked at their bases, most distinct on the hind legs. Wing-scales narrow, black, aggregated into patches; a long line on second and fourth veins within the cross-veins, a patch at bases of forks of second and fourth, and less distinct ones on base of upper fork of fifth and middle of sixth. Cross-veins in line.

Male—Coloration of the female; the palpi have whitish rings at the bases of the joints and middle of long joint. Hypopygium (Plate LXI, Fig. 198): Side-piece moderate, three times as long as wide, conical at tip; a slight subapical prominence, bearing one stiff seta and several normal ones; basal lobe slight, but running some distance along the tip of the hollow, with two stiff setæ on the lobe proper. Clasper rather stout at base, tapered, with small terminal spine. Tenth sternites narrow, chitinized, with a tooth a little subapical and some small ones. Ninth tergites slightly developed, small arcs with five sparse nearly normal setæ. Mesosome a large cylinder,

composed of two parts, angularly emarginate ventrally. Eighth segment with a very short row of short, stiff spines on its posterior border.

Larva (Plate LXI, Fig. 198)—Head rounded, slightly wider than long; antennæ moderate, with a small hair-tuft at the middle. Head-hairs multiple, the lower in three or four, the upper more numerous. Lateral comb of the eighth segment of many feathered scales in a large triangular patch. Air-tube two and a half times as long as wide, stout, pecten branched, followed by long strong setæ; a large tuft near the base. Anal segment ringed by the plate, the chitinization narrow and separated from the barred area of the ventral brush, punctured by the ventral hair-tufts; dorsal tuft of three hairs and a brush on each side.

Rocky Mountains westward to the Pacific, Alaska to southern California.

The larvæ occur in various ground-pools, more particularly ones contaminated by vegetable matter. They take readily to artificial receptacles, such as water-barrels, and are always seen in water-barrels placed on railroad trestles, unless these have been oiled, a wholly unnecessary precaution. Shaded and clear pools are commonly avoided, the larvæ appearing everywhere in the open with *Culex tarsalis*. The winter or dry season is passed in the adult state. The females are very slow and timid in approach, and prefer horses or cattle to man. The species is never abundant and commonly avoids man, so that protective measures against it are unnecessary.

CULICELLA (CULISETA) MACCRACKENÆ Dyar and Knab

CULISETA MACCRACKENÆ Dyar and Knab, Proc. Biol. Soc. Wash., xix, 133, 1906.
CULISETA DUGESI Dyar and Knab, Proc. Biol. Soc. Wash., xix, 134, 1906.
Culiseta maccrackenæ and *dugesi* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 494 and 496, 1915.
Culiseta (Culiseta) maccrackenæ Dyar, Proc. U. S. Nat. Mus., lxii, 27, 1922.
Culiseta maccrackenæ Dyar, Ins. Ins. Mens., xii, 144, 1924.
Culiseta dugesi Dyar, Ins. Ins. Mens., xiii, 149, 1925.
Theobaldia maccrackenæ Freeborn, Mosq. of Calif., 353, 1926.

Female—Proboscis moderate, black, with many white scales intermixed. Occiput with white scales, a dark stripe on the vertex. Mesonotum with brown scales, with many white ones intermixed, forming narrow lines posteriorly and edging the antescutellar space; pleuræ and coxæ with yellowish white scales. Abdomen black, the segments with basal white bands, a few white scales scattered over the black; venter white-scaled with a sprinkling of black. Legs blackish, sprinkled with white scales; femora with whitish subapical bands; tarsi with white rings at the bases of the joints, especially large on the hind legs on the first three joints. Wing-scales narrow, black, forming spots as follows: At origin of second vein, along the cross-veins, forks of second and fourth veins, upper fork of fifth, middle of sixth. The wing-membrane is infuscated at these points. The cross-veins are in line.

Male—Coloration of the female. The palpi have white bands at the bases of the joints and middle of long joint. Hypopygium (Plate LXII, Fig. 199): Side-piece moderate, conical at tip; a small apical lobe, the setæ nearly normal but dense; basal lobe conical, with three stout setæ at tip. Clasper stout, enlarged at base, with small terminal spine. Tenth sternites narrow, chitinized, with four divaricate terminal claws. Ninth tergites slight lunate areas with short, spiny setæ. Mesosome a broad cylinder, notched below, each part with a little recurved spine at the end of the collar-like summit.

Larva (Plate LXII, Fig. 199)—Head rounded, bulging at the sides; antennæ short, with a tuft near the middle. Head-hairs upper in seven, lower in two or three. Lateral comb of the eighth segment of many scales in a patch. Air-tube about three times as long as wide, tapering at tip; pecten running about one-fourth, followed by single hairs to three-fourths; a paired tuft at extreme base. Anal segment about as long as wide, ringed by the plate, the brush posterior, no tufts piercing the chitin. Anal gills about as long as the segment, tapered.

West coast of United States, Mexico, Costa Rica.

I have the species from Eureka, Presidio of San Francisco, Stanford University, and Bakersfield, California; Jalisco, Huipulco, Leon, Guanajuato, Mexico City, Hidalgo. Salvatierra, Hacienda de Tepetongo, and Tequisquiapan, Mexico; Escasú, Itiquis, and Rio Ciruelas, Costa Rica. The larvæ occur in old, stagnant, permanent pools. The species is rare and local, although apparently quite common in Mexico. Doubtless it prefers large mammals to man, and is not likely to prove troublesome.

CULICELLA (CULISETA) ALASKAENSIS (Ludlow)

THEOBALDIA ALASKAENSIS Ludlow, Can. Ent., xxxviii, 326, 1906.
Culiseta alaskaensis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 498, 1915.
Culiseta alaskaensis Dyar, Ins. Ins. Mens., vii, 33, 1919.
CULISETA SIBERIENSIS Ludlow, Ins. Ins. Mens., vii, 151, 1919.
Culiseta alaskaensis Dyar, Ins. Ins. Mens., viii, 20, 1920.
THEOBALDIA ARCTICA Edwards, Bull. Ent. Res., x, 136, 1920.
Culiseta (Culiseta) alaskanensis Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 79, 1921.
Culiseta (Culiseta) alaskaensis Dyar, Proc. U. S. Nat. Mus., lxii, 26, 1922.
Culiseta alaskaensis Dyar, Ins. Ins. Mens., xi, 45, 1923.
Culiseta alaskaensis Dyar, Ins. Ins. Mens., xii, 46, 1924.
Culiseta alaskaensis Hearle, Nat. Res. Counc., Rept. No. 17, 56, 1926.

Female—Proboscis moderate, blackish with many white scales intermixed. Occiput with white scales mingled with dark ones, a white patch on the side below. Mesonotum dark brown-scaled with many white ones intermixed, tending to form paired median spots, but not in lines; pleuræ and coxæ with yellowish white scales. Abdomen black, the segments with basal white bands; venter white-scaled, a few black ones intermixed. Legs dark brown to blackish, the tarsi with narrow white rings at the bases of the joints, broadest on the first two joints of hind-legs. Wing-scales narrow, black, forming spots as follows: Origin of second, along the cross-veins, forks of second and fourth veins, upper fork of fifth, middle of sixth. The wing-membrane is infuscated at these points. The cross-veins are in line.

Male—Coloration of the female. The palpi have whitish bands at the bases of the joints and middle of long joint. Hypopygium (Plate LXII, Fig. 200): Side-piece moderate, conical at tip; a small apical lobe with dense, fine setæ; basal lobe rather large, conical, with two very stout setæ at tip and many smaller ones. Clasper rather stout, tapering from the base, with small, thick terminal spine. Tenth sternites rather broad, chitinized on one margin, the tip curved, with one stout and two or three small appressed teeth. Ninth tergites small lunate areas bearing numerous fine normal setæ. Mesosome a stout produced cylinder, each half drawn out at tip into a strong hook.

Larva (Plate LXII, Fig. 200)—Head rounded, bulging on the sides; antennæ small, a tuft near the middle. Head-hairs upper seven, lower four, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube about two and a half times as long as wide; pecten of about eight teeth, followed by long hairs to the middle of the tube. Anal segment ringed by the plate; ventral brush with small tufts preceding, piercing the chitin two-thirds to base. Dorsal tuft a four-haired group and large brush on each side; lateral tuft in three, very small and fine. Anal gills much longer than the segment, the tips bluntly rounded.

Alaska, Yukon Valley, Rocky Mountains in British Columbia, Montana, Wyoming, and Colorado. Also in Scotland and mountainous areas in Europe.

The larvæ live in stagnant pools along the river valleys of the Rocky Mountain area. The species frequents the far north and high altitudes, but has not been found in the Californian mountains.

Genus MANSONIA Blanchard

PANOPLITES Theobald (not Gould), Mon. Culic., ii, 173, 1901.
Tæniorhynchus Theobald (not Lynch Arribálzaga), Mon. Culic., ii, 190, 1901.
MANSONIA Blanchard, C. R. Soc. de Biol., liii, 1045, 1901.
COQUILLETTIDIA Dyar, Proc. Ent. Soc. Wash., vii, 45, 1905.
RHYNCHOTÆNIA Brèthes, Anal. Mus. Nac. B. A. (3), xiii, 470, 1911.
PSEUDOTÆNIORHYNCHUS Theobald, Novæ Cul., i, 19, 1911.
Mansonia Dyar, Ins. Ins. Mens., vi, 112, 1918.
Mansonia Dyar, Proc. U. S. Nat. Mus., lxii, 30, 1922.
Mansonia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 484, 1924.
Mansonia Dyar, Ins. Ins. Mens., xiii, 40, 1925.
Tæniorhynchus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 314, 1925.

A moderate-sized genus of general distribution, allied to *Culex* and *Culicella,* but with specializations of its own. The larvæ have a modified air-tube, furnished with cutting teeth, so that they get their air-supply by cutting the vascular roots of certain water plants, and thus never come to the surface. Their habitat is any ponds or rivers overgrown with floating or semi-floating *Carex,* or in the tropics also the floating plant *Pistia.* Where conditions are favorable, the adults become numerous, and as they are severe biters and fly for considerable distances, they often become troublesome. None, however, are known disease carriers. On account of their retired habits, the larvæ were not early discovered, and our knowledge of them yet remains backward, except of the species of the North Temperate Zone, which has been studied in Europe and in America.

TABLE OF SPECIES

ADULT

1. Wing-scales distinctly inflated, broad 2
   Wing-scales narrow, elliptical 6
2. Mesonotum marked with golden anteriorly 3
   Mesonotum not marked with golden 4
3. Mesonotum entirely golden anteriorly . . . . . *amazonensis* Theobald
   Golden marking confined to the shoulders . . . . . *humeralis* Dyar and Knab
4. A large brownish species, the wing with large scales only . *pseudotitillans* Theobald
   Smaller species, the wing with at least a few narrow scales in addition to the broad ones 5

5. Larger; palpi over one-third as long as proboscis . . . . . *titillans* Walker
   Smaller; palpi not as long as one-third of the proboscis,
   indubitans Dyar and Shannon
6. Tarsi with white rings at the bases of the joints only . . . . . *perturbans* Walker
   Tarsi with white rings involving both ends of the joints 7
7. Tibiæ speckled with pale yellowish 8
   Tibiæ with a single pale ring, without speckles 10
   Tibiæ entirely dark; white markings of silvery tint . . . . *arribalzagæ* Theobald
8. A white mark on outer side of tibiæ . . . . . *araozi* Shannon and Del Ponte
   Tibiæ with speckles only 9
9. Wing-scales black and white mixed . . . . . *justamansonia* Chagas
   Wings with a few white scales along costal region and at base of first vein,
   venezuelensis Theobald
   Wings without pale scales . . . . . *fasciolata* Lynch Arribálzaga
10. A white line at base of first vein . . . . . *albicosta* Chagas
    Wing-scales all dark . . . . . *nigricans* Coquillett

MALE HYPOPYGIUM

1. Lobe of side-piece short or moderate, always shorter than the stout appended spine 2
   Lobe of side-piece very long, strap-shaped, the spine at the tip much shorter than it *(Mansonia)* 5
2. Mesosome single, a conical undivided structure *(Coquillettidia), perturbans* Walker
   Mesosome of separated paired pieces, generally two pairs *(Rhynchotænia)* . 3
3. Rod and lobe both long, exceeding tip of side-piece . . . . *arribalzagæ* Theobald
   Lobe distinctly short; tip of rod not reaching end of side-piece 4
4. Mesosome with two narrow hirsute appendages . . . . . *justamansonia* Chagas
   Mesosome swollen at tip, with two outward and one retrose teeth,
   fasciolata Lynch Arribálzaga
   Mesosome simple, membranous . . . . . *nigricans* Coquillett
5. Side-piece with a divided apical lobe, bearing hairs and filaments,
   amazonensis Theobald
   Side-piece without an apical lobe 6
6. Clasper more slender, with narrower lateral branch; basal lobe a little shorter, the swelling less and not occurring so near the tip . . *humeralis* Dyar and Knab
   With converse characters . . . . . *titillans* Walker

Of the following species the male is unknown: *Pseudotitillans, araozi, indubitans, venezuelensis,* and *albicosta.*

LARVA

1. Antenna stout; a hair tuft from a notch near the middle; one terminal digit drawn out, but distinctly smaller than the antenna itself; a large serrate spine from the head without the mouth-brush; anal segment with a row of hair-tufts piercing the chitinous ring . . . . . *titillans* Walker
   Antenna slender, a tuft beyond the middle; elongate terminal digit of the same size as antennal shaft and continuous with it, the other digits rudimentary; no serrate spine without the mouth-brush; anal segment without ventral tufts 2
2. Antennæ with a large tuft . . . . . *perturbans* Walker
   Antennæ with a small rudimentary tuft . . . . . sp.*

The larvæ of *titillans* and *perturbans* are the only ones certainly known in the genus.

* See discussion under *humeralis.*

Subgenus MANSONIA Blanchard

MANSONIA (MANSONIA) AMAZONENSIS (Theobald)

PANOPLITES AMAZONENSIS Theobald, Mon. Culic., ii, 182, 1901.
Mansonia amazonensis Blanchard, Les. Moust., 379, 1905.
Mansonia amazonensis Theobald, Mon. Culic., v, 450, 1910.
Mansonia amazonensis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 203, 1911.
Mansonia amazonensis Dyar, Ins. Ins. Mens., vi, 113, 1918.
Mansonia amazonensis Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 25, 1921.
TÆNIORHYNCHUS (MANSONIA) CHRYSONOTUM Peryassú, A Folha Medica, iii, 117, 1922.
Tæniorhynchus amazonensis and *chrysonotum* Peryassú, A Folha Medica, iv, 76, 1923.
Tæniorhynchus (Tæniorhynchus) amazonensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 322, 1925.
Mansonia amazonensis Bequaert, Med. Rep. Rice 7th Exp. Amazon, 199, 1926.

Female—Proboscis stout, with shaggy black scales, an illy defined ring of white ones in the middle. Occiput with small white scales behind the eyes, and many erect black bristles behind. Mesonotum with a large patch of dull golden scales, running back over half way; scales on sides and behind dark brown. Abdomen black and coppery scales, a whitish spot on the first segment dorsally and white scales laterally on the posterior angles of the segments; venter similarly colored to the dorsum. Legs brown and whitish mixed, the tarsi black after the first joint, each with small basal white ring. Wing-scales broadly ovate, black and yellowish white rather evenly intermixed.

Male—Side-piece about twice as long as wide, narrowed a little in the middle. Apical lobe with an inner and outer division, the inner with moderately long hairs, the outer with long hairs and filaments, one of them spatulate. Basal lobe produced into a stout rod, attenuated in the middle, with rounded tip and short terminal spine. Clasper stout, distorted, tapering to tip, with a long, slender branch and terminal spine. Tenth sternites small, toothed at tip. Mesosome a stout cylinder (Bonne-Wepster and Bonne).

Larva—Unknown.

Brazil.

One female is before me, collected in Belém, Pará, by Dr. J. Bequaert.

MANSONIA (MANSONIA) HUMERALIS Dyar and Knab

MANSONIA HUMERALIS Dyar and Knab, Ins. Ins. Mens., iv, 61, 1916.
Mansonia (Mansonia) humeralis Dyar, Ins. Ins. Mens., vi, 113, 1918.
Tæniorhynchus (Tæniorhynchus) humeralis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 320, 1925.
Mansonia humeralis Dyar, Ins. Ins. Mens., xiii, 23, 1925.
Mansonia humeralis Dyar, Ins. Ins. Mens., xiii, 24, 1925.
Mansonia (Mansonia) humeralis, Dyar, Ins. Ins. Mens., xiii, 150, 1925.
Mansonia humeralis Dyar, Ins. Ins. Mens., xiii, 215, 1925.
Mansonia humeralis Bequaert, Med. Rep. Rice, 7th Exp. Amazon, 198, 1926.

Female—Proboscis stout, shaggy, black-scaled with white ones intermixed, a small white ring near the middle. Occiput with brown and pale scales and many erect dark ones. Mesonotum loosely scaled with brown and dull

golden, the latter forming faint but sharply marked quadrate patches on the shoulders; black diffused patches posteriorly in the position of the usual half stripes. Abdomen black-scaled, the segments apically with rather broad golden whitish bands; venter similar, more mixed with pale scales. Legs with dark brown and pale scales intermingled, a little shaggy on the hind tibiæ; tarsi with small whitish rings at the bases of the joints. Wing-scales rather broadly ovate, black and whitish intermixed.

Male—Palpi gray, the tips of the joints black. Coloration as in the female. Hypopygium (Plate LXIII, Fig. 201): Side-piece a little thickened at the base, tip rounded; basal lobe from the tip of the excavation, the inner margin of which is thickened, a slender rod, gently swollen on its outer half, ending in a stout inserted spine, the whole reaching five-sixths of the side-piece. Clasper half as long as side-piece, stout; a rounded angular enlargement at base grooves the clasper to the middle; a small, stout terminal spine. Tenth sternites narrow, thickened, with stout terminal tooth. Mesosome a large membranous unmodified cone. Eighth segment with a row of long spines.

Larva—Unknown.

Colombia, Venezuela, British Guiana, Brazil.

I have the species from Aracataca and Barranquilla, Colombia; Catatumbo River, Venezuela; Georgetown, British Guiana; Manaos, Itacotiara, and Flores, Amazonas, Brazil. The eggs are laid on the leaves of *Pistia* with those of *titillans,* from which they differ in shape; but the larva has not been isolated.

Certain larvæ found on the roots of *Pistia* with *titillans* in Panama were supposed by me to be the larvæ of *humeralis;* but a reconsideration of their structure leads to the conclusion that they are not the larvæ of this species, but more probably belong to a species of the *fasciolata* group, three of which occur in Panama.

MANSONIA (MANSONIA) PSEUDOTITILLANS (Theobald)

PANOPLITES PSEUDOTITILLANS Theobald, Mon. Culic., ii, 178, 1901.
Mansonia pseudotitillans Blanchard, Les. Moust., 378, 1905.
Mansonia pseudotitillans Chagas, Nov. Esp. de Cul. Braz., 28, 1907.
Mansonia pseudotitillans Peryassú, Os Culic. do Braz., 233, 1908.
Mansonia pseudotitillans Theobald, Mon. Culic., v, 448, 1910.
Mansonia pseudotitillans Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 202, 1911.
Mansonia pseudotitillans Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 521, 1915.
Mansonia (Mansonia) pseudotitillans Dyar, Ins. Ins. Mens., vi, 113, 1918.
Mansonia pseudotitillans Lutz, Mem. Inst. O. Cruz., x, 87, 1919.
Tæniorhynchus pseudotitillans Peryassú, A Folha Medica, iv, 76, 1923.
Tæniorhynchus (Tæniorhynchus) pseudotitillans Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 322, 1925.

Female—Proboscis stout, shaggy, blackish scales at base and tip, broadly whitish centrally. Occiput with small whitish scales, intermixed with erect black bristles. Mesonotum dark brown with two broad reddish lines in the integument, sparsely scaled in brown, mixed with whitish. Abdomen blackish brown, the segments with narrow, pale apical bands, somewhat triangularly widened in the middle; venter similar, but mixed with whitish scales. Legs brown, sprinkled with white, the last four tarsal joints black;

white rings at the bases of the tarsal joints rather broad on the hind legs. Wing-scales broadly ovate, black and yellowish white mixed.

Male—Unknown.

Larva—Unknown.

Surinam and Brazil.

MANSONIA (MANSONIA) TITILLANS (Walker)

CULEX TITILLANS Walker, Cat. Brit. Mus., Dipt., i, 5, 1848.
TÆNIORHYNCHUS FLAVEOLUS Coquillett, Proc. Ent. Soc. Wash., vii, 182, 1906.
Mansonia titillans Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 200, 1911.
Mansonia titillans and *flaveolus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 516 and 521, 1915.
Mansonia titillans Dyar and Knab, Ins. Ins. Mens., iv, 61, 1916.
Mansonia (Mansonia) titillans Dyar, Ins. Ins. Mens., vi, 112, 1918.
Mansonia titillans Dunn, Ent. News, xxix, 260, 1918.
Mansonia titillans Lutz, Mem. Inst. O. Cruz., x, 87, 1919.
Mansonia (Mansonia) titillans Dyar, Proc. U. S. Nat. Mus., lxii, 32, 1922.
Tæniorhynchus titillans Peryassú, A Folha Medica, iv, 76, 1923.
Mansonia titillans Dyar, Ins. Ins. Mens., xiii, 23, 1925.
Mansonia titillans Dyar, Ins. Ins. Mens., xiii, 29, 1925.
Mansonia (Mansonia) titillans Dyar, Ins. Ins. Mens., xiii, 43, 1925.
Mansonia (Mansonia) titillans Dyar, Ins. Ins. Mens., xiii, 150, 1925.
Mansonia titillans Dyar, Ins. Ins. Mens., xiii, 215, 1925.
Tæniorhynchus (Tæniorhynchus) titillans Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 316, 1925.

Female—Proboscis stout, black at tip, gray on basal two-thirds, a small white ring between the colors. Occiput with whitish scales and black, erect bristles. Mesonotum with sparse brown scales mixed with whitish. Abdomen black, the segments with narrow apical white bands; venter similar, intermixed with whitish scales. Legs brown, sprinkled with white, the last four tarsal joints black; tarsi with narrow white rings at the bases of the joints, largest on the hind legs. Wing-scales ovate, intermixed in places with narrow ones, black and yellowish white mixed.

Male—Coloration of the female. The palpi are black. Hypopygium (Plate LXII, Fig. 202): Side-piece over twice as long as wide; basal lobe with triangular base, narrow stem and bulbous apex, the latter thick on one margin, with apical spine. Clasper thick, distorted, with central flap; terminal spine very small. Tenth sternite small, narrow, the tip with bent point. Mesosome a simple cone. Eighth segment with a posterior row of stout spines, the middle two trifid, next bifid.

Larva (Plate LXII, Fig. 202)—Head transverse, eyes rudimentary, front margin concave, the frontal spines prominent; antennæ large, tapered outwardly with a large tuft at the middle; one terminal spine of the diameter of the shaft and nearly as long, the other two slender. Lateral comb of the eighth segment of five slender separated scales. Air-tube stoutly conical, about two and a half times as long as wide, the tip narrowed, thickened and furnished with saw-teeth; a fine tuft about the middle, two hairs and two filaments before the saw. Anal segment four times as long as wide, ringed by the plate; ventral brush posterior, but five or six slender tufts preceding, piercing the chitin. Dorsal tuft a hair and long brush on each side; lateral tuft small. Anal gills small and slender, about the length of the width of the segment.

Southern Florida and the Antilles, tropical America from Mexico to Peru and east of the Andes to Argentina.

The eggs are laid in masses on the leaves of the floating water plant *Pistia*. The larvæ attach themselves to the vascular roots of the plant, from which they obtain their air-supply and do not come to the surface. The pupæ are also attached to the roots. Where the *Pistia* covers large surfaces of water, the mosquitoes may become abundant, and as they are fierce biters after dark, may be annoying, but are not disease carriers. The adults may fly for considerable distances.

A light yellow form occurs rarely, aberration *flaveolus* Coquillett.

MASONIA (MANSONIA) INDUBITANS Dyar and Shannon

MANSONIA INDUBITANS Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 41, 1925.
Mansonia indubitans Bequaert, Med. Rep. Rice 7th Exp. Amazons, 199, 1926.

Female—Proboscis stout, black at tip, gray on basal two-thirds, a white ring between the colors. Occiput with whitish scales and black, erect bristles. Mesonotum with sparse brown scales mixed with whitish. Abdomen black, the segments with narrow apical white bands; venter similar, mixed with whitish scales. Legs brown, sprinkled with white, the last four tarsal joints black; tarsi with narrow white rings at the bases of the joints, largest on the hind legs. Wing-scales ovate, intermixed in places with narrow ones, black and yellowish white mixed.

Male—Unknown.

Larva—Unknown.

Brazil; Belém, Pará; Itacoatiara and above Santarem, Amazonas; Rio Branco, lower Rio Negro.

Essentially similar to *titillans*, but a smaller species with shorter palpi.

Subgenus RHYNCHOTÆNIA Brèthes

MANSONIA (RHYNCHOTÆNIA) JUSTAMANSONIA (Chagas)

TÆNIORHYNCHUS JUSTAMANSONIA Chagas, Nov. Esp. de Cul. Braz., 23, 1907.
Tæniorhynchus justamansonia Peryassú, Os Culic. do Braz., 223, 1908.
Tæniorhynchus justamansonia Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 197, 1911.
MANSONIA (COQUILLETTIDIA) HYPOCINDYNA Dyar, Ins. Ins. Mens., vi, 115, 1918.
Mansonia juxtamansonia Dyar, Ins. Ins. Mens., vi, 115, 1918.
Mansonia justamansonia Dyar, Ins. Ins. Mens., ix, 31, 1921.
Tæniorhynchus juxta-mansonia Peryassú, A Folha Medica, iv, 76, 1923.
Tæniorhynchus (Coquillettidia) hypocindyna and *juxtamansonia* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 327 and 331, 1925.

Female—Proboscis moderate, black, smooth, a broad white ring beyond the middle, the tip white. Occiput with sparse whitish scales and erect, dark bristles. Mesonotum with sparse brown scales and pale golden scales in narrow longitudinal lines; pleuræ with white scales above and below, separated by a brown bar. Abdomen black-scaled, the sides with lateral median segmental silvery spots, becoming larger behind; venter black and yellowish mixed, the tips of the segments with narrow white lines. Legs black, femora with narrow subapical white ring; tibiæ spotted with white, forming a line on the inner side of hind legs; tarsi with narrow white rings involving both ends of the joints. Wing-scales narrowly ovate, black and whitish mixed, the pale scales rather inconspicuous.

Male—Hypopygium (Plate LXIII, Fig. 203): Side-piece three times as long as wide, tapered, rounded at tip; basal lobe thickened principally on one side, drawn out into a short stout stem carrying a long stout spine. Clasper large at the base, tapering outwardly, with small stout terminal spine. Tenth sternites narrow, chitinized, the tip with about five divaricate teeth. Ninth tergites quadrate, distinct, bearing many setæ. Mesosome with the inner appendages columnar, with terminal tooth and a little tail-like hirsute appendage; outer appendages at right angles from the bases of the inner, chitinized, triangularly spatulate at tip.

Larva—Unknown.

Brazil (Juiz de Fora, Agua Limpa, and São Paulo).

I am indebted to Dr. F. M. Root for the male.

MANSONIA (RHYNCHOTÆNIA) VENEZUELENSIS (Theobald)

PSEODOTÆNIORHYNCHUS VENEZUELENSIS Theobald, Bull. Mus. d'Hist. Nat. Paris, xviii, 61, 1912.

Tæniorhynchus (Coquillettidia) venezuelensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 331, 1925.

Female—Proboscis black, smooth, a rather broad white ring beyond the middle. Occiput with sparse whitish scales and erect black bristles. Mesonotum with sparse brown scales and pale golden scales in narrow longitudinal lines; pleuræ with patches of white scales, separated by two indistinct black bars. Abdomen black-scaled, the sides with lateral median segmental white spots, becoming larger behind; venter black and yellowish mixed, the tips of the segments with narrow white lines. Legs black, femora with narrow white subapical rings; femora and tibiæ coarsely yellow-spotted; tarsi with narrow white rings involving both ends of the joints. Wing-scales rather narrowly ovate, the scaling smaller and appearing interrupted at the bases of the fork cells and on cross-veins, black with more or less white ones intermixed in the costal region, the first vein white-scaled at its base.

Male—Unknown.

Larva—Unknown.

Venezuela.

Dr. Núñez T. has sent me a few females from the Maracay region of Venezuela. Specimens from the Catatumbo and Zulia Rivers were not this species, but *fasciolata* as found by Major Dunn. This species is very close to *fasciolata*, perhaps a local form of it.

MANSONIA (RHYNCHOTÆNIA) FASCIOLATA (Lynch Arribálzaga)

TÆNIORHYNCHUS FASCIOLATUS Lynch Arribálzaga, Rev. Mus. de La Plata, ii, 150, 1891.

Tæniorhynchus fasciolatus Theobald, Mon. Culic., v, 420, 1910.

Tæniorhynchus fasciolatus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 194, 1911.

Mansonia fasciolatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 512, 1912.

Mansonia fasciolatus Dyar, Ins. Ins. Mens., vi, 114, 1918.

Tæniorhynchus fasciolatus Peryassú, A Folha Medica, iv, 76, 1923.

Tæniorhynchus (Coquillettidia) fasciolatus Bonne and Bonne-Weyster, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 324, 1925.

Mansonia (Rhynchotænia) fasciolatus Dyar, Ins. Ins. Mens., xiii, 41, 1925.

Mansonia (Rhynchotænia) fasciolata Dyar, Ins. Ins. Mens., xiii, 152, 1925.

Mansonia fasciolatus Dyar, Ins. Ins. Mens., xiii, 215, 1925.

Mansonia fasciolata Bequaert, Med. Rep. Rice 7th Exp. Amazons, 198, 1926.

Female—Proboscis black, smooth, a rather broad white ring beyond the middle. Palpi black with white tips. Occiput with sparse whitish scales and erect black bristles. Mesonotum with sparse brown scales and pale golden ones in narrow longitudinal lines; pleuræ with patches of white scales separated by two more or less distinct black bars in the integument. Abdomen black-scaled, with lateral median segmental slightly silvery white spots, becoming larger behind; venter black and yellowish mixed, the tips of the segments with narrow white lines. Legs black, femora with narrow white subapical rings; femora and tibiæ coarsely yellow-spotted; tarsi with narrow white rings involving both ends of the joints. Wing-scales rather narrowly ovate, the scaling smaller and appearing interrupted at the bases of the fork-cells and on cross-veins, black.

Male—Coloration of the female. Palpi with white rings at the bases of the joints and middle of long joint. Hypopygium (Plate LXIII, Fig. 204): Side-piece rather slender, tapered, rounded at tip; basal lobe thickened, short, bearing a stout spine longer than it. Clasper thick, tapered, curved, with small, thick terminal spine. Tenth sternites narrow, consisting of one thickened margin, with five large teeth at the tip. Ninth tergites represented by two patches of stout spines without elevated bases. Mesosome of two pairs of appendages, the inner columnar, erect, chitinized, with quadrate inner expansion at tip; the outer spine-shaped, with elliptical base through the lumen of which the inner pair of appendages pass.

Larva—Unknown.

Tropical America from Central America to Brazil. The larva has not been isolated, though perhaps the one referred to under *humeralis* and indicated in the table of larvæ of *Mansonia* as "sp." may belong here.

MANSONIA (RHYNCHOTÆNIA) ARAOZI Shannon and Del Ponte

MANSONIA ARAOZI Shannon and Del Ponte, new species (here published).

"*Female*—Proboscis black with a rather small white ring near the middle, the tip whitish-marked. Palpi rather short, not over one-sixth the length of the proboscis, dark with white tips. Mesonotum dark, with narrow silvery-brassy scales forming a definite pattern, a single line in front, joining an irregular hexagon with a central spot, embellished by a narrow, waved lateral line. Pleuræ dark brown, the incisures pale. Abdomen dark brown with white posterior lateral segmental spots, the venter narrowly white anteriorly on the segments. Legs brown-black, the femora white below and with white subapical ring; tibiæ with many yellowish white speckles and a large patch at outer third; tarsi with narrow yellowish white rings involving both ends of the joints. Wing-scales black, with interruptions at the bases of the fork-cells as in *fasciolata,* with a number of white scales scattered along costa and first vein as in *venezuelensis.*"—Shannon and Del Ponte.

Male—Unknown.

Larva—Unknown.

Argentina (Ledesma, Jujuy).

One of the types has been deposited in the U. S. National Museum through the courtesy of the Instituto Bacteriologico de Buenos Aires of the Argentine Government and the good offices of Mr. R. C. Shannon.

MANSONIA (RHYNCHOTÆNIA) NIGRICANS (Coquillett)

TÆNIORHYNCHUS NIGRICANS Coquillett, Proc. Ent. Soc. Wash., vi, 166, 1904.
BANCROFTIA PERSEPHASSA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 254, 1909.
Mansonia nigricans Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 511, 1915.
Orthopodomyia persephassa Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 886, 1917.
Mansonia nigricans Dyar, Ins. Ins. Mens., vi, 113, 1918.
Mansonia nigricans Dyar, Ins. Ins. Mens., ix, 30, 1921.
Tæniorhynchus (Coquillettidia) nigricans Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trŏp. Hyg. No. 13, 330, 1925.
Mansonia (Rhynchotœnia) nigricans Dyar, Ins. Ins. Mens., xiii, 41, 1925.
Mansonia (Rhynchotœnia) nigricans Dyar, Ins. Ins. Mens., xiii, 151, 1925.

Female—Proboscis moderate, smooth, black, with a yellowish white ring beyond the middle. Occiput with sparse whitish scales and erect black bristles. Mesonotum with sparse brown scales and yellowish white ones arranged in longitudinal lines; pleuræ with white scales between two black bands in the integument. Abdomen black, the sides with median segmental white spots, larger posteriorly; venter also black, the bases of the segments pale yellowish. Legs black with yellowish white marks, a rather broad subapical ring on femora, a spot beyond the middle of tibiæ, narrow rings on the tarsal joints involving both ends. Wing-scales rather narrowly ovate, brown, uniform.

Male—Coloration of the female. Palpi with white rings at the bases of the joints and middle of long joint. Hypopygium (Plate LXIII, Fig. 205): Side-piece moderate, rather thickly conical; basal lobe chitinized down both margins of the excavation, short, with a long, thick spine twice as long as it. Clasper rather large, tapered, curved, with rather small terminal spine. Tenth sternites narrow, chitinized, ending in a single tooth of the diameter of the shaft. Ninth tergites indicated by two groups of stout spines. Mesosome membranous, the parts quadrate and broad, each arising from a small, triangular chitinized basal piece.

Larva—Unknown.

Panama, Cuba, Colombia, Venezuela.

Probably distributed with *fasciolata,* but a much rarer form. Where it does occur it may be numerous. The writer met with it in numbers at Gamboa, Canal Zone. A single larva was dipped from the roots of the grass comprising the floating islands of the upper flooded Chagres Valley, but it was lost before a description could be made.

MANSONIA (RHYNCHOTÆNIA) ALBICOSTA (Peryassú)

TÆNIORHYNCHUS ALBICOSTA Peryassú, Os. Culic. do Braz., 220, 1908.
Tæniorhynchus albicosta Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 196, 1911.
Mansonia albicosta Dyar, Ins. Ins. Mens., vi, 115, 1918.
Tæniorhynchus albicosta Peryassú, A Folha Medica, iv, 76, 1923.
Tæniorhynchus (Coquillettidia) albicosta Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 331, 1925.
Mansonia albicosta Bequaert, Med. Rep. Rice 7th Exp. Amazon, 199, 1926.

Female—Proboscis moderate, smooth, black, a white band just beyond the middle. Occiput with sparse whitish scales and erect black bristles. Meso-

notum with sparse brown scales and many whitish golden ones, which form a broad band down the middle, more sparsely distributed on the sides; pleuræ with black spots in the integument, and small patches of white scales. Abdomen black, the sides with small segmental white patches, larger behind; venter blackish-scaled, the tips of the segments with white scales. Legs black, femora with a narrow white subapical ring; tibiæ with a white spot beyond the middle and a white line on the inner side of hind pair; tarsi with small white rings involving both ends of the joints. Wing-scales narrowly ovate, black, the first vein distinctly white-scaled at base for a quarter of its length.

Male—Unknown.

Larva—Unknown.

Brazil.

This is a small species of the size of *nigricans*, and appears to replace it in Brazil. I have specimens from Xerém and Belém, Pará, the latter collected by Dr. J. Bequaert.

MANSONIA (RHYNCHOTÆNIA) ARRIBALZAGÆ (Theobald)

TÆNIORHYNCHUS ARRIBALZAGÆ Theobald, Mon. Culic., iii, 261, 1903.
Tæniorhynchus arribalzagæ Goeldi, Os Mosq. no Para, 110, 1905.
TÆNIORHYNCHUS COTICULA Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 101, 1907.
Tæniorhynchus arribalzagæ Theobald, Mon. Culic., iv, 483, 1907.
Tæniorhynchus arribalzagæ Peryassú, Os Culic. do Braz., 228, 1908.
Tæniorhynchus arribalzagæ Theobald, Mon. Culic., v, 419, 1910.
Tæniorhynchus arribalzagæ Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 195, 1911.
Mansonia coticula Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 515, 1915.
Mansonia coticula and *arribalzagæ* Dyar, Ins. Ins. Mens., vi, 114, 1918.
Mansonia arribalzagæ Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 26, 1921.
Tæniorhynchus arribalzagæ Peryassú, A Folha Medica, iv, 76, 1923.
Tæniorhynchus (Coquillettidia) coticula Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 327, 1925.
Mansonia (Rhynchotænia) arribalzagæ Dyar, Ins. Ins. Mens., xiii, 41, 1925.
Mansonia (Rhynchotænia) arribalzagæ Dyar, Ins. Ins. Mens., xiii, 152, 1925.

Female—Proboscis rather long, smooth, black, a small white ring beyond the middle, the tip whitish. Occiput with sparse silvery scales, intermixed with black bristles. Mesonotum sparsely clothed with black scales, leaving two lines and posterior areas of the reddish ground-color; on the shoulders on each side a small aggregation of silver scales; pleuræ and coxæ with small patches of silver scales. Abdomen black, the sides with median silver patches, large behind; venter black and yellowish intermixed, the apices of the segments with a few silvery scales. Legs black, femora with a white ring at outer third, the tips silvered; tarsi with snowy white rings at the bases of the joints only slightly and indistinctly involving the apices also, broad on the hind-legs. Wing-scales rather narrowly ovate, all blackish.

Male—Coloration of the female. The slender, smooth palpi as long as the proboscis have narrow white rings at the bases of the joints and middle of the long joint. Hypopygium (Plate LXIII, Fig. 206): Side-piece rather small, conical, rounded at tip; basal lobe chitinized on both sides of the hollow, drawn out into a rather long thick rod, from which a long thick spine exceeds the tip of the side-piece. Clasper rather stout, sinuate, with

moderate terminal spine. Tenth sternites narrow, chitinized, with four large sharp, separated teeth at tip. Ninth tergites a pair of rather large conical lobes covered with setæ. Mesosome with the inner appendages large, broad, and flat, angularly twisted, the end tapering and blunt; outer pair crossing the bases of these, elliptical basally, pointed outwardly.

Larva—Unknown.

Panama, Colombia, Surinam, and Brazil (Pará).

This species is very rare, only a few specimens being before me.

Subgenus COQUILLETTIDIA Dyar

MANSONIA (COQUILLETTIDIA) PERTURBANS (Walker)

Culex perturbans Walker, Ins. Saund., Dipt. 428, 1856.
Culex testaceus Van Der Wulp, Tids. voor Ent., (2), x, 128, 1867.
Culex richiardii Ficalbi, Bull. Soc. Ent. Ital., xxi, 50, 1889.
Culex ochropus Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 100, 1907.
Mansonia ochropus and *perturbans* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 504 and 505, 1915.
Aëdes testaceus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 717, 1917.
Mansonia perturbans Dyar, Ins. Ins. Mens., vii, 31, 1919.
Culex testaceus Dyar, Ins. Ins. Mens., vii, 36, 1919.
Tæniorhynchus richardi Wesenberg-Lund, Mém. l' Acad. Roy. Sci. Lettr. Danemark, (8), vii, No. 1, 103, 1920.
Mansonia (Coquillettidia) perturbans Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 83, 1921.
Tæniorhynchus (Coquillettidia) richiardii Edwards, Bull. Ent. Res., xii, 291, 1921.
Mansonia (Coquillettidia) perturbans Dyar, Proc. U. S. Nat. Mus., lxii, 31, 1922.
Culex testaceus Edwards, Bull. Ent. Res., xv, 260, 1925.
Mansonia (Coquillettidia) perturbans Dyar, Ins. Ins. Mens., xiii, 41, 1925.
Mansonia perturbans Hearle, Nat. Res. Counc., Rept. No. 17, 57, 1926.

Female—Proboscis moderate, black, a broad white ring at the middle and scattered white scales basally. Occiput with sparse white scales on a black ground, erect brown bristles behind. Mesonotum with sparse brown scales and about as many silvery whitish ones forming narrow longitudinal lines; pleuræ and coxæ with small patches of whitish scales. Abdomen black with a few whitish scales; sides with small median segmental white patches; venter black, mixed with yellowish scales. Legs dark brown, sprinkled with white; hind tibiæ with a white ring at outer third; tarsi with broad white rings at the bases of the joints, broadest on the hind legs. Wing-scales narrowly ovate, black and white mixed.

Male—Coloration of the female. Palpi with white scales mixed on the shaft, the hairs all dark. Hypopygium (Plate LXIII, Fig. 207): Side-piece broad, rounded at tip; basal lobe chitinized on one margin of the basal hollow, forming a sharp basally directed tooth, itself a rounded chitinization, bearing a long, stout, uniform, round-tipped rod. Clasper large, constricted at basal third, convex beyond, with a small stout terminal tooth. Tenth sternites narrow, thick, with about five parallel teeth. Ninth tergites two little chitinized knobs bearing three fine setæ each. Mesosome two chitinized large sac-like appendages with a series of little teeth on the inner margin basally, a paired small basal rod within the teeth, and two pairs of outwardly directed tapering supports.

Larva (Plate LXIII, Fig. 207)—Head rounded, strongly transverse, frontal spines projecting; head-hairs in multiple tufts. Antennæ long, the

shaft itself longer than the head, a large tuft at the outer third, beyond which the shaft is more slender; two terminal digits, fine, moderate; the third as long as the shaft and beginning at about the same diameter, runs to a point. Lateral comb of the eighth segment of about nine narrow separated scales in a curved row. Air-tube short and stout, truncate, one margin produced into a saw; a three-haired paired tuft at the middle; two filaments at the truncation before the saw. Anal segment three times as long as wide, ringed by the plate; ventral brush posterior; dorsal tuft of two unequal groups of long hairs on each side; lateral tuft about five-haired, small. Anal gills much shorter than the segment, narrow.

Eastern United States from Canada to Florida, westward through forested country to British Columbia; North Europe from Sweden to Hungary and Palestine.

The larvæ hatch from floating egg-boats and attach themselves to the vascular roots of a floating sedge that fringes the margins of ponds and swamps. The pupæ are also attached to the roots. Adults appear about the first of July, flying considerable distances, and are persistent biters. They are not disease carriers.

A pale brownish unmarked dimorphic form occasionally occurs, form *testaceus* van der Wulp.

Genus DEINOCERITES Theobald

DEINOCERITES Theobald, Mon. Culic., ii, 215, 1901.
BRACHYOMYIA Theobald, Mon. Culic., ii, 343, 1901.
DINOMIMETES Knab, Journ. N. Y. Ent. Soc., xv, 120, 1907.
DINANAMESUS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 259, 1909.
Deinocerites Dyar, Proc. U. S. Nat. Mus., lxii, 7, 1922.
Deinocerites Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 485, 1924.
Deinocerites Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 168, 1925.

A small peculiar genus derived from *Culex* (*Tinolestes* type), known only from the shores of the Caribbean Sea and immediately adjacent regions. The larvæ live in the water which collects in the holes of certain species of crabs which inhabit low, muddy shores just above the limit of tides. The adults rest in these holes, and fly out when the crustacean host enters. The remarkably elongate antennæ perhaps serve as special sensory organs to warn them of this danger. The adults are therefore closely confined to the marshy littoral. Most of the species are not known to bite warm-blooded animals, although the smallest of the species, *spanius*, does so, even entering houses for the purpose when these are situated close to its habitat. *Cancer* is also stated to bite, the bite being "painful and gives a peculiar sensation different from one of the ordinary house mosquitoes" (Bonne).

TABLE OF SPECIES

ADULT

1. Size small; antennal joints not greatly elongated . . . . . *spanius* Dyar and Knab
   Size larger; antennal joints greatly elongated 2
2. Cerci of female with two thick spines . . . . . *cancer* Theobald
   Cerci of female with one spine . . . . . *monospathus* Dyar
   Cerci of female without thick spine, setose 3
3. Postnotum without setæ; antennæ of the female with the second joint shorter than in the male . . . . . *pseudes* Dyar and Knab
   Postnotum (generally) with setæ; antennæ of female like those of the male, *epitedeus* Knab

MALE HYPOPYGIUM

1. The two claws of clasper equal . . . . . *cancer* Theobald
   The claws of clasper unequal 2
2. The long plate-like parameres stout, curved . . . . . { *pseudes* Dyar and Knab / *epitedeus* Knab
   Parameres slender, a little curved . . . . . *spanius* Dyar and Knab

The following species is unknown in the male: *Monospathus.*

LARVA

1. Anal gills over twice as long as wide . . . . . *epitedeus* Knab
   Anal gills very short 2
2. Lateral hair of anal segment branched; an oblique lateral patch of spines, *pseudes* Dyar and Knab
   Lateral hair of anal segment simple . . . . . *cancer* Theobald

The larvæ of the following are unknown: *Monospathus* and *spanius.*

DEINOCERITES CANCER Theobald

DEINOCERITES CANCER Theobald, Mon. Culic., ii, 215, 1901.
BRACHIOMYIA MAGNA Theobald, Mon. Culic., ii, 344, 1901.
DEINOCERITES MELANOPHYLUM Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 200, 1907.
DEINOCERITES TETRASPATHUS Dyar and Knab, Smiths. Misc. Coll., Quart. Iss., lii, 260, 1909.
DEINOCERITES TROGLODYTUS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 260, 1909.
Deinocerites cancer Theobald, Mon. Culic., v, 553, 1910.
Deinocerites cancer Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 91, 1911.
Deinocerites cancer, troglodytus, melanophylum, and *tetraspathus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 201, 206, 207, and 209, 1915.
Deinocerites cancer Dyar and Knab, Ins. Ins. Mens., v, 183, 1917.
Culex (Deinocerites) troglodytus Dyar, Ins. Ins. Mens., vi, 101, 1918.
Culex (Deinocerites) melanophylum Dyar, Ins. Ins. Mens., vi, 102, 1918.
Culex (Deinocerites) cancer Dyar, Ins. Ins. Mens., vi, 102, 1918.
Deinocerites (Deinocerites) cancer Dyar, Proc. U. S. Nat. Mus., lxii, 8, 1922.
Deinocerites melanophylum Dyar, Ins. Ins. Mens., xiii, 155, 1925.
Deinocerites troglodytus cancer, melanophyllum, and *tetraspathus* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 171, 173, and 175, 1925.

Female—Proboscis rather long, slender, blackish brown. Head and thorax with few narrow scales and many bristles. Abdomen black; venter gray. Legs dark brown. Wing-scales narrow, dark. Cerci conically produced, stout, each with two filaments at tip. First joint of antennæ about three times as long as second.

Male—Coloration of the female. First joint of antenna longer than in the female, but the second and following joints elongate, the second half the first. Hypopygium (Plate LXV, Fig. 211): Side-piece stout, conical; a large basal excavation; basal lobe bearing two short, flattened ovate appendages and a stout spine. Clasper stout, club-shaped on outer half, hirsute without, with two deeply inserted equal terminal claws. Tenth sternites broad, flattened, with numerous broad blunt teeth in a row on the margin; a group of spines with tubercular bases on the flat surface. Parameres very large, flattened, broad, rounded at tip, reaching three-fourths the length of side-piece. Mesosome of two paired plates, the inner with elliptical base and long horn-like tip, the outer flat with rounded tip.

Larva (Plate LXV, Fig. 211)—Head almost circular in outline, an angular projection at each side covering the base of the jaw (mandible); antennæ moderate, slender, a tuft near the middle. Head-hairs upper in two to four, lower single or double, anteantennal tuft multiple. Lateral comb of the eighth segment of many long spines in a patch. Air-tube about four times as long as wide, sparse pecten of few teeth reaches basal third of tube, followed by a two-haired tuft. Anal segment longer than wide, the plate very indistinct, but visible dorsally and ventrally; ventral brush on the posterior half; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills very short, only one pair.

Littoral of southern Florida, Antilles, Caribbean coast, and Gulf coast, Central America, and Mexico.

The larvæ live in the water in the holes of certain crabs that inhabit low marshy shore regions. The adults may, on occasion, bite; but in general they do not do so, and the species is without economic importance.

DEINOCERITES MONOSPATHUS Dyar

DEINOCERITES MONOSPATHUS Dyar, Ins. Ins. Mens., xiii, 155, 1923.

Female—Proboscis rather long, slender, blackish brown. Head and thorax with few narrow scales and many bristles. Abdomen black; venter gray. Legs dark brown. Wing-scales narrow, dark. Cerci conically produced, stout, each with one filament at tip.

Male—Unknown.

Larva—Unknown.

Panama (Atlantic side).

This may be an aberration of *cancer*. I have noted but a single specimen.

DEINOCERITES PSEUDES Dyar and Knab

DEINOCERITES PSEUDES Dyar and Knab, Smiths. Misc. Coll., Quart. Iss., lii, 260, 1909.
Deinocerites pseudes Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 21, 1915.
Culex (Deinocerites) pseudes Dyar, Ins. Ins. Mens., vi, 101, 1918.
Deinocerites pseudes Dyar, Ins. Ins. Mens., xiii, 155, 1925.
Deinocerites pseudes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 176, 1925.

Female—Proboscis rather long, dark brown. Occiput and mesonotum with sparse brown scales and many bristles. Abdomen black, venter gray. Legs blackish brown. Wing-scales narrow, dark. Cerci conical, hairy. First joint of antennæ very long, second and following ones moderate.

Male—Coloration of the female. First joint of antennæ shorter than in the female, but second to sixth are elongated, the second about three-quarters of the first. Hypopygium (Plate LXV, Fig. 212): Side-piece stout, conical; basal lobe forming a little excavation above the basal excavation bearing two bulbous chitinized appendages and a thick spine. Clasper short, thick, enlarged outwardly, strongly hirsute on dorsal side, with two unequal stout terminal claws. Tenth sternites broad, one margin thickened, the tip with a long row of broad, blunt teeth, a few setæ from tubercles before them inwardly. Parameres large, remote, the base broadly conical, the apical half narrow with rounded tip. Mesosome of two paired plates, the inner large, stout, a notch at middle, the tip horn-like and incurved, outer flat and plate-like.

Larva (Plate LXV, Fig. 212)—Head almost circular in outline, a lateral fold to cover base of mandible. Antennæ rather long, slender, a tuft near the middle. Head-hairs upper in four, lower single. Lateral comb of the eighth segment of many spines in a large patch. Air-tube four times as long as wide, a sparse pecten on basal third, followed by a three-haired tuft, a little tuft subapically. Anal segment longer than wide, the plate very indistinct, visible dorsally and ventrally; a patch of spines on the side; ventral brush posterior; dorsal tuft a long hair and brush on each side; lateral hair single, small. Anal gills very short, only one pair.

Mexico and Central America, Atlantic and Pacific Coasts.

This is the only species of *Deinocerites* occurring on the Pacific Coast. The larvæ occur in crab-holes. The adults rest in the holes by day as with *cancer*. The habits appear to be identical.

DEINOCERITES EPITEDEUS (Knab)

DINOMIMETES EPITEDEUS Knab, Journ. N. Y. Ent. Soc., xv, 120, 1907.
Dinomimetes epitedeus Theobald, Mon. Culic., v, 553, 1910.
Dinomimetes epitedeus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 92, 1911.
Dinomimetes epitedeus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 197, 1915.
Culex (Deinocerites) epitedeus Dyar, Ins. Ins. Mens., vi, 101, 1918.
Deinocerites epitedeus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 174, 1925.
Deinocerites epitedeus Dyar, Ins. Ins. Mens., xiii, 156, 1925.

Female—Proboscis moderate, dark brown. Occiput and mesonotum with sparse brown scales and many bristles. Postnotum generally with a tuft of setæ posteriorly. Abdomen black, venter grayish. Legs blackish brown. Wing-scales narrow, dark. Cerci conical, hairy. Antennæ with the first four joints elongated.

Male—Coloration of the female. First six joints of antennæ elongated, the second almost as long as the first. Hypopygium (Plate LXV, Fig. 213): Side-piece stout, conical; basal lobe quadrate, a lump on one side, the other with two stout elliptical appendages and a stout spine. Clasper stout, club-shaped outwardly, hirsute dorsally, with two deeply inserted unequal terminal spines. Tenth sternites flat, one margin slightly thickened, the tips with a row of many broad, blunt teeth; a group of setæ from tubercles below the tip. Parameres large, remote, base broadly conical, outer two-thirds narrowly spatulate. Mesosome of two pairs of appendages, the inner long, slender, spine-like, the other plate-like.

Larva (Plate LXV, Fig. 213)—Head nearly circular in outline, the sides with sac-like expansions for the mandibular projections. Antennæ long, slender, a tuft near the middle. Upper head-hair double, lower single. Lateral comb of the eighth segment of many scales in a large patch. Air-tube about six times as long as wide, with five pecten teeth reaching near the middle, followed by a two-haired tuft; two small tufts near apex. Anal segment longer than wide, the plate indistinct, showing dorsally and ventrally; ventral brush posterior; dorsal tuft a long hair and six-haired brush on each side, lateral hair single, small. Anal gills one pair, half as long as the segment, broad.

Panama and Costa Rica, Atlantic Coast.

The larvæ live in the water in crab-holes, with apparently the same habits as *cancer* and *pseudes*.

DEINOCERITES SPANIUS (Dyar and Knab)

DINANAMESUS SPANIUS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 259, 1909.
Dinanamesus spanius Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 213, 1915.
Culex (Deinocerites) spanius Dyar, Ins. Ins. Mens., vi, 101, 1918.
Deinocerites spanius Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 176, 1925.
Deinocerites spanius Dyar, Ins. Ins. Mens., xiii, 154, 1925.

Female—Proboscis moderate, blackish, lighter toward base below. Occiput and mesonotum with sparse brown scales and numerous dark bristles. Abdomen black, venter whitish. Legs black. Wing-scales narrowly ovate, dark. Cerci large, tapered, and upturned, setose. Antennæ with first joint elongate, over twice as long as the succeeding normal joints.

Male—Coloration of the female. First joint of antennæ but little elongated, not one and a half times the normal second joint. Hypopygium (Plate LXV, Fig. 214): Side-piece moderate, convex outwardly, rounded at tip; basal lobe quadrately produced, in cross-section appearing as a lacuna above the basal excavation, bearing two finger-shaped blunt rods and a spine. Clasper stout, hirsute outwardly, with two unequal, deeply inserted terminal spines. Tenth sternites broad, flat, one margin slightly thickened; a long row of many flat, blunt teeth on the margin, with a group of tubercles bearing small setæ before. Parameres thick at base, long, slender, pointed. Mesosome of three pairs of appendages, inner slender, upright, pointed, thin; middle concave, with one angle produced to a point, outer broad, plate-like.

Larva—Unknown.

Panama (Atlantic side).

The larvæ live in the water in crab-holes and sometimes in old tins, but have not been isolated.

Genus LUTZIA Theobald

LUTZIA Theobald, Mon. Culic., iii, 155, 1903.
JAMESIA Christophers, Sci. Mem. Med. Ind., n. s., No. 25, 12, 1906.
Lutzia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 485, 1924.
(Lutzia) Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 191, 1925.

A very small genus of species modified from the *Culex* stem, occurring in tropical countries throughout the world. The larvæ are predacious upon other mosquito larvæ, usually *Culex,* in small collections of water such as rock-holes, tree-holes, and receptacles. On account of this restricted habit the species are rare and seldom seen unless bred. The wings of the American species are yellow, spotted with black.

TABLE OF SPECIES

ADULT

1. Middle yellow spot of costa not involving the first vein 2
   This spot involving the first vein . . . . . *allostigma* Howard, Dyar, and Knab
2. From Mexico to Guatemala . . . . . *bigoti* Bellardi
   From Brazil . . . . . *brasiliæ* Dyar
   From Argentina . . . . . *patersoni* Shannon and Del Ponte

MALE HYPOPYGIUM

1. Mesosome a long, slender tooth with slight dentition on one side, *allostigma* Howard, Dyar, and Knab
   Mesosome a thick tooth . . . . . *patersoni* Shannon and Del Ponte
   Mesosome quadrate and thick 2
2. Mesosome with numerous blunt denticles . . . . . *bigoti* Bellardi
   Mesosome smooth on the margin . . . . . *brasiliæ* Dyar

LARVA

1. Pecten of the air-tube of ten to twelve teeth, not extended much beyond middle of tube . . . . . *allostigma* Howard, Dyar, and Knab
   Pecten of seven to nine teeth, well separated, and extending far beyond middle of tube . . . . . { *bigoti* Bellardi / *brasiliæ* Dyar

The larva of the following species is unknown: *Patersoni.*

LUTZIA BIGOTI (Bellardi)

Culex bigoti Bellardi, Mem. Acc. Sc. Torino, xxi, 200, 1862.
Lutzia bigotii Theobald, Mon. Culic., v, 293, 1910.
Lutzia bigoti Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 158, 1911.
Lutzia bigoti Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 468, 1915.
Culex (Lutzia) bigoti Dyar, Ins. Ins. Mens., vi, 93, 1918.
Culex (Lutzia) bigoti Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 195, 1925.

Female—Proboscis moderate, rather stout, golden yellow-scaled with black scales especially toward base, a black band before tip. Occiput with sparse pale scales and dense, erect brown bristles. Mesonotum with brown scales, mottled with light yellowish ones without defined pattern. Abdomen black-scaled, the segments with broad apical yellow bands, which are triangularly produced in the middle, often doubly pointed; venter pale yellow-scaled. Legs black-scaled, much sprinkled with yellow, the yellow often predominating; tarsi blacker, with rather broad pale yellow rings involving both ends of the joints. Wing-scales narrow, yellow and black in spots; black, the following parts yellow; three costal spots, the first long on costa, short on first vein; second on costa only; third subapical, involving costa, first vein and upper fork of second; third vein except base and tip; a spot on upper fork of fourth and two on its lower fork; both forks of fifth vein, except their bases and lower cross-vein; sixth vein except base and tip.

Male—Coloration of the female. Palpi yellow and black, yellow at bases of joints and tip of last, all of long joint but three black spots. Hypopygium (Plate LXIV, Fig. 208): Side-piece rather long, tapered, rounded at tip; basal lobe beyond tip of excavation, slight, with three stout setæ and other normal ones. Clasper moderate, stout, a little flattened and ridged outwardly, with wide appendiculate terminal spine. Tenth sternites rounded trigonate, tufted at tip with equal spines, the base with a thumb-like projection. Mesosome two pairs of plates, the outer lamellate and jointed to parameres, the inner columnar, stout, chitinized, with a large, curved, apical tooth and irregular lateral denticles.

Larva (Plate LXIV, Fig. 208)—Head rounded, a little bulging on the sides, rather quadrate before with projecting angles of the mouth-brush bases. Antennæ very small, with a double tuft at the middle; head-hairs single, the anteantennals moved up close to the lower frontals and away from the antenna. Lateral comb of the eighth segment of many well-separated scales in a large patch. Air-tube four times as long as wide, the pecten reaching three-fourths, the last two teeth widely separated; seven

short multiple tufts along the ventral line. Anal segment twice as long as wide, ringed by the plate; ventral brush on posterior half; dorsal tuft two long hairs on each side; lateral hair single, small. Anal gills four, very short and slender.

Mexico and Guatemala.

The larvæ are predacious upon other mosquito larvæ, chiefly *Culex,* living in small permanent collections of water or receptacles.

LUTZIA ALLOSTIGMA Howard, Dyar, and Knab

LUTZIA ALLOSTIGMA Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 471, 1915.
Culex (Lutzia) allostigma Dyar, Ins. Ins. Mens., vi, 93, 1918.
Culex (Lutzia) allostigma Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 192, 1925.
Lutzia allostigma Dyar, Ins. Ins. Mens., xiii, 153, 1925.

Female—Proboscis moderate, rather stout, golden yellow-scaled with black scales especially toward base, a black band before tip. Occiput with dense, erect brown bristles. Mesonotum with brown scales, mottled with light yellowish ones without defined pattern. Abdomen black-scaled, the segments with broad apical yellow bands, which are triangularly produced in the middle, often doubly pointed; venter pale yellow-scaled. Legs black-scaled, much sprinkled with yellow, the yellow often predominating; tarsi blacker, with rather broad pale yellow rings involving both ends of the joints. Wing-scales narrow, yellow and black in spots; costa with three yellow spots involving costa and first vein; third vein yellow, lower fork of fourth, all of fifth from middle of cell, and cross-vein; a small spot outwardly on sixth.

Male—Coloration of the female. Palpi mostly yellow, with black rings in the middle of the joints and at tip of long joint also. Hypopygium (Plate LXIV, Fig. 209): Side-piece long, tapered, rounded at tip. Lobe at outer third, bearing three rods. Clasper small, curved, a little flattened and ridged outwardly; spine wide, appendiculate. Tenth sternites rounded trigonate, the tip with a tuft of short uniform spines. Parameres and basal plates membranous. Mesosome quadrate at the base, truncate on top, one angle rising as a long horn with a bunch of small denticles in the middle. Ninth tergites indicated as two groups of setæ.

Larva (Plate LXIV, Fig. 209)—Head subquadrate, slightly bulging on the sides; antennæ small, a double tuft at the middle. Lateral comb of the eighth segment of many spines in a patch. Air-tube about four times as long as wide; pecten running slightly beyond middle of tube of about twelve teeth, the outer ones well separated; a partly double row of moderately long hair-tufts posteriorly from base to near apex of tube. Anal segment longer than wide, ringed by the plate; ventral brush on the posterior half; dorsal tuft of two long hairs on each side; a single lateral hair. Anal gills very small, slender.

Panama, Surinam.

The larvæ are predacious upon other mosquito larvæ, principally *Culex,* as with *bigoti.*

LUTZIA BRASILIÆ Dyar

Lutzia bigoti Peryassú (not Bellardi), Os Culic. do Braz., 182 and 343, fig. 39, 1908.
LUTZIA BRASILIÆ Dyar, Ins. Ins. Mens., xi, 67, 1923.
Culex (Lutzia) brasiliæ Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 195, 1925.

Female—Proboscis moderate, rather stout, golden yellow-scaled with black scales especially toward base, a black band before tip. Occiput with dense, erect brown bristles. Mesosome with brown scales, mottled with light yellowish ones without defined pattern. Abdomen black-scaled, the segments with broad apical yellow bands, which are triangularly produced in the middle, often doubly pointed; venter pale yellow-scaled. Legs black-scaled, much sprinkled with yellow, the yellow often predominating; tarsi blacker, with rather broad, pale yellow rings involving both ends of the joints. Wing-scales narrow, yellow and black in spots; three yellow spots on costa, the middle one not involving the first vein; the outer covering upper fork of second; third vein yellow except at base; one spot on upper fork, two spots on lower fork of fourth vein; fifth vein yellow, both forks, except base of fork, including cross-vein; a spot in middle of sixth vein.

Male—Coloration as in the female. Palpi blackish, the following parts pale yellow; last joint except a spot above base, base of second joint, middle of long joint. Hypopygium (Plate LXIV, Fig. 210): Side-piece narrowly conical; lobe a little beyond the middle, with three rods and several stiff setæ intermingled; a concentration of hairs before tip. Clasper stout at base, moderate, a little flattened and ridged outwardly. Tenth sternites rounded triangular, with a tuft of fine spines, the inner ones more stubby and thick. Ninth tregites represented by an elongate group of hairs. Mesosome large, prismatically angled, the tip tooth-like, curved.

Larva—Head rounded quadrate; antennæ very small. Lateral comb of the eighth segment of many spines in a large patch. Air-tube about four times as long as wide, pecten reaching about three-fourths of tube, the outer teeth widely detached; about seven few-haired tufts along the ventral line. Anal segment longer than wide, ringed by the plate; ventral brush on posterior half. Anal gills minute.

Brazil, Argentina (Iguazu, Misiones, R. C. Shannon).

The larva, judging from Peryassú's figure, is not appreciably different from that of *bigoti,* which the coloration of the adult also resembles. The male hypopygium, however, shows distinct differences. Specimens from Salta, Argentina (R. C. Shannon), show slight differences in the male hypopygium; the spines of the lobe of side-piece are more numerous and stronger, while the mesosome shows lateral blunt teeth.

LUTZIA PATERSONI Shannon and Del Ponte

Lutzia paterson Shannon and Del Ponte, new species (here published).

"*Female*—Similar in coloration to the male.

"*Male*—Palpi black, banded with yellow at the tips of the joints, the last joint pale except at base. Mesonotum brown, with small rather sparse pale scales. Abdomen black, with dorsal segmental basal pale spots and lateral pale scales; venter yellowish white. Legs black, the femora pale at base; tip of femur, base of tibiæ pale yellow; tibiæ and first tarsal joints largely pale except at tip; last four tarsal joints black, with broad, pale-yellow rings, involving both ends of the joints. Wing-scales black, spotted with pale yellow; three yellow spots on costa, the middle one involving first vein; third vein yellow except at base; upper fork of fifth vein yellow, except at base. Hypopygium: Side-piece conical, rather long; lobe rounded, low, with three stout spines and a number of smaller ones intermixed. Clasper small, slender, with slightly subapical spine. Tenth sternites with small basal arm, the tip tufted with spines, of which the outer are a little

stouter, but not tooth-like. Mesosome stout and quadrate at base, excavate without and ending in a small curved tooth, a large mass of dense denticles just before the origin of the apical tooth."—Shannon and Del Ponte.

Larva—Unknown.

Argentina (San Pedrode, Jujuy).

The types are two males, April 27, 1926 (Shannon and Shannon), bred from larvæ, in a grassy rain-pool with *Aëdes* and *Psorophora* larvæ, a description of which is not available at the time. One type deposited in the collection of the U. S. National Museum through the courtesy of the Instituto Bacteriologico of Buenos Aires.

Genus CULEX Linnæus

Culex Linnæus, Syst. Nat., x, 602, 1758.
Melanoconops Theobald, Mon. Culic., iii, 178, 1903.
Lasioconops Theobald, Mon. Culic., iii, 235, 1903.
Melanoconion Theobald, Mon. Culic., iii, 238, 1903.
Heptaphlebomyia Theobald, Mon. Culic., iii, 336, 1903.
Carrollia Lutz, (not *Carolia* Cantr., not *Carollia* Gray), Imp. Med., 1905, 81, 1905.
Aedinus Lutz, Imp. Med., 1905, 103, 1905.
Gnophodeomyia Theobald, Journ. Econ. Biol., i, 21, 1905.
Neoculex Dyar, Proc. Ent. Soc. Wash., vii, 45, 1905.
Pseudoheptaphlebomyia Ventrillon, Bull. Mus. Nat. Hist. Paris, 427, 1905.
Micraedes Coquillett, U. S. Dep. Agr., Bur. Ent., Tech. Ser. 11, 16, 1906.
Tinolestes Coquillett, U. S. Dep. Agr., Bur. Ent. Tech. Ser. 11, 16, 1906.
Mochlostyrax Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 223, 1906.
Aporoculex Theobald, Mon. Culic., iv., 150, 1907.
Culiciomyia Theobald, Mon. Culic., iv, 227, 1907.
Leucomyia Theobald, Mon. Culic., iv, 372, 1907.
Microculex Theobald, Mon. Culic., iv, 461, 1907.
Trichopronomyia Theobald, Mon. Culic., iv, 479, 1907.
Oculeomyia Theobald, Mon. Culic., iv, 515, 1907.
Neomelanoconion Newstead, Dutton and Todd, Ann. Trop. Med. and Par., i, 31, 1907.
Pectinopalpus Theobald, Ann. Nat. Mus. Hung., (8), v, 375, 1910.
Eumelanomyia Theobald, Mon. Culic., v, 114, 1910.
Phalangomyia Dyar and Knab, Ins. Ins. Mens., ii, 58, 1914.
Culex Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 215, 1915.
Laiomyia Izquierdo, Inv. sobre el Pal. en Pueblo, Thesis Doct. Col. del Est. de Pueblo, 65, 1916.
Transculicia Dyar, Ins. Ins. Mens., v, 184, 1917.
Cacoculex Dyar, Ins. Ins. Mens., vi, 100, 1918.
Chœroporpa Dyar, Ins. Ins. Mens., vi, 103, 1918.
Helcoporpa Dyar, Ins. Ins. Mens., vi, 125, 1918.
Eubonnea Dyar, Ins. Ins. Mens., vii, 150, 1919.
Neoculex Dyar, Ins. Ins. Mens., viii, 36, 1920.
Melanoconion Dyar and Ludlow, Ins. Ins. Mens., ix, 47, 1921.
Carrollella Lutz, A Folha Medica, ii, 161, 1921.
Barraudius Edwards, Bull. Ent. Res., xii, 332, 1921.
Culex Dyar, Proc. U. S. Nat. Mus., lxii, 8, 1922.
Anœdioporpa Dyar, Ins. Ins. Mens., xi, 190, 1923.
Culex Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 485, 1924.
Culex Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 177, 1925.
Phalangomyia Dyar, Ins. Ins. Mens., xiv, 41, 1926.

A large genus of world-wide distribution, especially in the tropics; absent in the arctic. To this group belong the semidomesticated house mosquitoes which bite at night, and against which houses have to be screened. The

larvæ in general inhabit collections of permanent water, and thus the house species find breeding-places in the water in artificial receptacles, unscreened sewage-disposal plants, and the like. Only a few species are thus troublesome; the great majority of the tropical species are seldom seen unless bred. One species at least is known to bite cold-blooded animals exclusively. Some of the species are peculiarly modified, perhaps the most striking being those of the subgenus *Microculex,* which live in the water held in the leaf-bases of epiphytic Bromeliaceæ. The larvæ of these have extremely long, thin breathing-tubes, while the eggs are deposited in a jelly-like mass as in Chironomidæ, entirely unlike any other mosquito eggs.

Table of Species

ADULT

Note—Colorational characters are so indefinite in this genus that resort must be had to the male genitalia for certainty of determination. Especially in the subgenera *Melanoconion* and *Mochlostyrax* no tangible characters have been found. The following table, therefore, separates only the better marked species:

1. Vertex of the head with narrow curved scales 2
   Vertex often with small flat scales or many erect forked scales; smaller species generally with the tarsi unmarked *(Mochlostyrax, Tinolestes, Aëdinus,* and *Melanoconion;* male required for determination).
2. Abdomen with the segments projecting ventrally, appearing tufted; tarsi dark or the fourth hind tarsal only white-marked at base; body with spots of metallic purple-silvery *(Carrollella)* 17
   Abdomen unmodified; never marked with metallic purple 3
3. Tarsal joints marked with white at the bases only, or if wholly dark, small species with a black stripe on pleuræ at base of coxæ *(Microculex)* 12
   Tarsal joints white-marked at both ends of the articulations 4
   Tarsi without white markings 7
4. Proboscis of the female with a white ring 5
   Proboscis of the female without white ring 6
5. Tarsal white rings broad; mesonotum not or but little ornamented
   { *tarsalis* Coquillett
   { *stigmatosoma* Dyar
   { *duplicator* Dyar and Knab
   Tarsal rings narrow; mesonotum sometimes markedly ornamented,
   { *corniger* Theobald
   { *bahamensis* Dyar and Knab
6. Last two hind tarsal joints white . . . . . *albipes* Peryassú
   Fourth hind tarsal at least dark in the middle,
   { *coronator* Dyar and Knab
   { *surinamensis* Dyar
   { *maracayensis* Evans
   { *declarator* Dyar and Knab
   { *bidens* Dyar
   { *stenolepis* Dyar and Knab
   { *lepostenis* Dyar
   { *pinarocampa* Dyar and Knab
   { *janitor* Theobald
   { *secutor* Theobald
   { *habilitator* Dyar and Knab
   { (Some specimens of *nigripalpus* and *mollis)*
7. Abdomen with the white markings apical on the segments 8
   Dorsal and lateral white markings, if present, basal on the segments 10

8. Abdominal bands expanded laterally, forming a line, *sphinx* Howard, Dyar, and Knab
   White markings not forming a lateral line 9
9. Abdominal bands transverse, uniform . . . . . *apicalis* Adams
   These bands absent, represented by lateral spots . . . . *derivator* Dyar and Knab
10. Legs long and slender; femora and tibiæ white at tip; wings with a clouded white patch on the forks of second vein *(Phalangomyia)* . . . . . { *articularis* Philippi; *debilis* Dyar and Knab; *escomeli* Brèthes; *apicinus* Philippi
    Legs moderate; wings without a clouded white patch near apex 11
11. Mesonotum with narrow curved scales { *inflictus* Theobald; *interrogator* Dyar and Knab; *chidesteri* Dyar; *brevispinosus* Bonne-Wepster and Bonne; *spinosus* Lutz; *bonneæ* Dyar and Knab; *virgultus* Theobald; *quinquefasciatus* Say; *pipiens* Linnæus
    Mesonotum with fine hair-like scales . . . . . { *nigripalpus* Theobald; *mollis* Dyar and Knab; *salinarius* Coquillett; *erythrothorax* Dyar; *dolosus* Lynch Arribálzaga; *federalis* Dyar; *territans* Walker; *brethesi* Dyar
12. Tarsi marked with white at the bases of the joints 13
    Tarsi wholly dark 16
13. Mesonotum with the anterior two-thirds broadly silvery golden, *chryselatus* Dyar and Knab
    Mesonotum more or less marked with silvery around the margin 14
    Mesonotum brown, without markings 15
14. Palpi of male white-ringed . . . . . { *gairus* Root; *imitator* Theobald
    Palpi of male wholly dark . . . . . { *jenningsi* Dyar and Knab; *rejector* Dyar and Knab
15. White rings of tarsi distinct . . . . . { *consolator* Dyar and Knab; *pleuristriatus* Theobald; *fasciolatus* Lutz
    Tarsal white rings small and indistinct . . . . . *daumastocampa* Dyar and Knab
16. A black spot in a pale ring in front of wing-base . . . . . *ocellatus* Theobald
    Without this character . . . . . { *inimitabilis* Dyar and Knab; *azymus* Dyar and Knab; *neglectus* Lutz
17. A broad white mark at base of fourth hind tarsus . . . . . *urichii* Coquillett
    Without this marking, tarsi wholly dark . . { *metempsytus* Dyar; *secundus* Bonne-Wepster and Bonne; *infoliatus* Bonne-Wepster and Bonne; *iridescens* Lutz

MALE HYPOPYGIUM

1. Tenth sternites tufted, rarely a single row of pointed spines 2
   Tenth sternites comb-shaped, the teeth blunt 27

2. Lobe of side-piece divided, the outer part cone-shaped and bearing variously shaped structures *(Phalangomyia)* 3
   Lobe of side-piece single, or if divided, not in this manner *(Culex)* 4
3. Inner projecting lobe of basal division of side-piece with two short, stout spines, *debilis* Dyar and Knab
   This part with three long spines, one of which is slightly hooked at the tip, *apicinus* Philippi
   This part with very long spines, one of which is bent over at a sharp angle, *escomeli* Brèthes
   This part unmodified, flat, with three rods, the middle one sinuate, *articularis* Philippi
4. Mesosome without parameres, consisting only of two bars connected by a bridge, { *apicalis* Adams / *derivator* Dyar and Knab }
   Mesosome complete, parameres and first plates present 5
5. Lobe of side-piece entire 6
   Lobe of side-piece divided, or without a leaf-like appendage 21
6. Lobe of side-piece narrow, compressed, with three rods or less 7
   Lobe of side-piece uncompressed, with additional appendages 9
7. Lobe of side-piece subapical, the rods long, bent toward base, *habilitator* Dyar and Knab
   Lobe of side-piece subbasal, the rods moderate or short 8
8. Lobe with three rods, slender, rather long . . . . . *maracayensis* Evans
   Lobe with two short, thick rods and a spine . . . . . *bahamensis* Dyar and Knab
9. Lobe of side-piece with three rods, a leaf and a seta 10
   Lobe of side-piece with additional appendages 12
10. Mesosome with the tooth arising from the base; a radiating pecten in the angle, *nigripalpus* Theobald
    This with the tooth arising at the middle; no pecten in the angle 11
11. Upper arm of mesosome broadly horn-shaped . . . . . *virgultus* Theobald
    This arm rounded and denticulate . . . . . *chidesteri* Dyar
    This arm long, pointed . . . . . { *stenolepis* Dyar and Knab / *lepostenis* Dyar }
12. Lobe of side-piece with three rods, a seta or filament, a leaf and a seta 13
    This part with additional appendages 19
13. Mesosome with two broad arms and a central mass of close laminate denticles, *corniger* Theobald
    Mesosome not so formed 14
14. Mesosome with two arms and a number of teeth between; a long tooth from basal part 15
    Mesosome not so formed 17
15. Upper limb of mesosome denticulate . . . . . *stigmatosoma* Dyar
    This limb smooth, not denticulate 16
16. This limb doubly pointed, T-shaped . . . . . *mollis* Dyar and Knab
    This limb broadly horn-shaped . . . . . { *salinarius* Coquillett / *erythrothorax* Dyar / *federalis* Dyar / *janitor* Theobald / *secutor* Theobald / *dolosus* Lynch Arribálzaga / *lygrus* Root }
17. Mesosome with three large teeth . . . . . *declarator* Dyar and Knab
    Mesosome with two bent outer teeth . . . . . *bidens* Dyar
    Mesosome quadrate, denticulate on the upper half . . *interrogator* Dyar and Knab
    Mesosome with long sharp horn on upper angle, thumb-shaped process below; no dentition . . . . . *interfor* Dyar
    Mesosome small, of two blunt teeth . . . . . { *territans* Walker / *brethesi* Dyar }

18. Rods preceded by a curved-tipped filament . . . . . *acharistus* Root
Rods not preceded by a curved-tipped filament 19

19. Upper arm of mesosome long-pointed . . . . . *pinarocampa* Dyar and Knab
Mesosome without dentition 20

20. Second plate of mesosome upright, pointed . . . . . *quinquefasciatus* Say
This plate oblique and tubular . . . . . *pipiens* Linnæus

21. Lobe of side-piece without a leaf-like appendage 22
A leaf-like appendage present on a separate piece 26

22. Tenth sternites strong, six teeth on the outer side; basal branch chitinized, *tarsalis* Coquillett
Tenth sternites weak, basal branch chitinized 23
Tenth sternites weak, basal branch hardly chitinized 23*a*

23. Tenth sternites with large teeth and simple horn . . . . . *maxi* Dyar
These with minute teeth and T-shaped horn . . . . . *saltanensis* Dyar

23*a*. Mesosome with a central mass of close laminate denticles 24
Mesosome with teeth between the arms 25

24. Upper arm of mesosome a triangular plate . . . . . *duplicator* Dyar and Knab
This plate a slender arm bent over . . . . . *bonneæ* Dyar and Knab

25. Upper arm of mesosome bent at right angles and pointed, *coronator* Dyar and Knab
This arm bent, but shortly rounded . . . . . *surinamensis* Dyar
This arm rounded capitate . . . . . *brevispinosus* Bonne-Wepster and Bonne

26. Mesosome with two arms and a small group of teeth between, *sphinx* Howard, Dyar, and Knab
Mesosome without arms, truncate, with sharp teeth . . . . . *inflictus* Theobald

27. Clasper simple, the tip not enlarged or modified 28
Clasper enlarged, branched, or otherwise modified at tip 31

28. Outer division of the lobe absent; inner arm long *(Aëdinus)* 29
Not so formed 30

29. Inner division of the lobe with a single short filament . . . . *amazonensis* Lutz
This part with two normal appressed filaments . . . . . *accelerans* Root

30. Mesosomal plate with quadrately angled retrose tooth *(Microculex)* 32
Mesosomal plate without retrose tooth *(Melanoconion)* 40

31. Inner division of lobe of side-piece a long arm from basal area *(Carrollella)* . . 110
Both lobes of side-piece approximately equally developed *(Mochlostyrax)* . . 54

32. Outer division of the lobe of side-piece represented by small setæ 33
These setæ lost in an outer ridge of setæ 35

33. Outer division of the lobe with a small leaf 34
Outer division with a spatulate filament . . . . . *consolator* Dyar and Knab
Outer division of the lobe with setæ only 37

34. Setæ only on the base of the inner division . . . . . *inimitabilis* Dyar and Knab
Setæ on the base and running well beyond it . . . . . *neglectus* Lutz

35. Outer ridge of setæ involving the inner division of the lobe 36
This ridge of setæ entirely beyond the inner division . . *jenningsi* Dyar and Knab

36. Ridge of setæ wide, numerous . . . . . *imitator* Theobald
Ridge of setæ narrow, fan-shaped . . . . . *daumastocampa* Dyar and Knab
Ridge of setæ slight, beyond the lobe . . . . . *rejector* Dyar and Knab

37. Outer division of the lobe with six setæ; clasper narrowed on the outer half . . . . . *pleuristriatus* Theobald
Outer division of the lobe with five setæ 38
Outer division of the lobe with four setæ . . . . . *hedys* Root
Outer division of the lobe with two setæ . . . . . *ocellatus* Theobald

38. Mesosomal plate with outer and inner teeth, both long and reaching near base . . . . . *gairus* Root
Mesosomal plate without distinct outer tooth 39

39. Upper edge of mesosomal plate sharply angled . . . . *chryselatus* Dyar and Knab
Upper edge of mesosomal plate high, rounded and smooth . . *aphylactus* Root

40. Rods of lobe of side-piece two mushroom-shaped, one a stout seta (Section *Tinolestes)* . . . . . *latisquama* Coquillett
These structures not so modified 41

41. Clasper rather sharply angled in the middle, more or less hirsute outwardly on the outer half (Section *Anœdioporpa)* 42
Clasper smoothly tapered, not angled 46

42. Divisions of lobe of side-piece both columnar, subequal; clasper hirsute . . 43
Outer division of lobe shorter than inner; clasper not hirsute 44

43. Outer division of lobe with two leaves on the stem . . *conservator* Dyar and Knab
This structure without leaves on the stem . . . . . *homœopas* Dyar and Ludlow

44. Inner division hirsute on the margin; outer division large, with filaments, *originator* Gordon and Evans
Inner division smooth; outer shortened and without filaments 45

45. Inner division of lobe of side-piece long, with two moderate filaments, *restrictor* Dyar and Knab
This part short, with two short spine-like filaments . . *corrigani* Dyar and Knab

46. Clasper thick, tapered on outer third; lobes of side-piece apart, connected to base by a ridge (Section *Gnophodeomyia)* . . . . . *aikenii* Aiken
Clasper slender, uniformly tapered; lobes of side-piece normal (Section *Melanoconion)* 47

47. Both divisions of the lobe of side-piece distinct and separate 49
These lobes reduced, represented by a single elevation or group of setæ . . 48

48. Lobe of side-piece subprominent, with four or five setæ 48*a*
Lobe absent, represented by four long setæ; two distorted leaves following toward apex . . . . . *spissipes* Theobald

48*a*. Inner limb of inner division of lobe with two filaments, *americanus* Neveu-Lemaire
This part with one filament and a seta . . . . . *antillum-magnorum* Dyar

49. A triangular leaf between outer division of lobe and apex 50
Without this structure 51

50. Inner division with two short filaments; outer with fan-shaped leaf, *commevynensis* Bonne-Wepster and Bonne
Inner division with two long normal filaments; outer with leaf and seta, *ruffinis* Dyar and Shannon

51. Inner division of lobe of side-piece with the appendages long 52
These appendages short and spine-like 53

52. This part with two appendages; inner plate of mesosome bulbous with pointed tip . . . . . *zeteci* Dyar
This part with one appendage; plate of mesosome slenderly tapered, *loturus* Dyar

53. Lobes of side-piece remote; plates of mesosome gently curved toward each other . . . . . *atratus* Theobald
Lobes of side-piece approximate; lobes of mesosome widely curved toward each other, forming a circular space . . . . . *dunni* Dyar

54. Clasper with three arms at tip (Section *Dinoporpa*) . . . . . *trifidus* Dyar
Clasper widened and obliquely truncate (Section *Helcoporpa), menytes* Dyar
Clasper roundedly expanded at tip, foot-shaped (Section *Mochlostyrax*) . . . 55
Clasper narrowly snout-like (Section *Chæroporpa*) 58

55. Inner division of lobe of side-piece with three filaments preceding, *innovator* Evans
Inner division of the lobe with one filament following . . . . . *unicornis* Root
These parts without accessory structures 56

56. Ninth tergites large, with long hairs 57
Ninth tergites small, hairy . . . . . *hesitator* Dyar and Knab
Ninth tergites minute, pointed, rarely appearing round . . *pilosus* Dyar and Knab

57. Mesosomal plate with long subapical third point, ninth tergites long, constricted . . . . . *caudelli* Dyar and Knab
This plate with short subapical third point; ninth tergites long, conical, *alogistus* Dyar
58. Outer snout of clasper elongate, as long as basal part . . . . . *egcymon* Dyar
Outer snout of clasper short, normal 59
59. Inner division of lobe of side-piece undivided 60
This part more or less distinctly cleft, separating the filaments 68
60. Inner division of lobe of side-piece with three wrinkled ridges and a membrane . . . . . *pastharus* Dyar
This part without ridges or membrane 61
61. Inner division with one seta on the stem 62
This part without a seta 63
62. Mesosomal plate with two sharp points oppositely directed . . . *epanastasis* Dyar
This plate single with a horn-point at middle . . . . . *tæniopus* Dyar and Knab
This plate normally furcate with a third point (hook) on the stem, *inadmirabilis* Dyar
63. Outer division of lobe of side-piece without a leaf 64
This part with a leaf 66
64. Outer division with a long filament from base . . . . . *ybarmis* Dyar
Without this structure 65
65. Mesosomal plate narrow, thickly horn-shaped . . . . . *automartus* Root
Mesosomal plate widely spatulate with pointed lateral angles, *opisthopus* Komp
Mesosomal plate semicylindrical, flat-topped, with a long slender horn from the middle of one side . . . . . *mychonde* Komp
66. Outer division of lobe of side-piece with a stout seta at base; leaf angular-truncate . . . . . *clarki* Evans
This part without such seta; leaf round 67
67. Outer division of lobe of side-piece with a distinct inner arm, the leaf between this and outer setal group . . . . . *thomasi* Evans
This part without inner arm; leaf from stem below outer setal group, *bequaerti* Dyar and Shannon
68. Clasper with a horn-like tuft before tip; terminal spine uniform 69
Without this structure; terminal spine generally widened and appendiculate . 71
69. Anterior crest of clasper of appressed or consolidated spines 70
This crest composed of fine hairs . . . . . *anips* Dyar
70. Terminal spine of clasper stout; anterior crest solid . . *erraticus* Dyar and Knab
This spine delicate; anterior crest of compressed spines . . *peccator* Dyar and Knab
71. Mesosomal plate with single point . . . . . *holoneus* Dyar
Mesosomal plate furcate or widely ended at tip 72
72. Mesosomal plate without a point on the stem 73
This plate with a point on the stem, basally, medianly, or subapically . . . 82
73. Outer division of lobe of side-piece with a leaf 74
This part without a leaf 78
74. Ninth tergites long, finger-shaped . . . . . *tecmarsis* Dyar
Ninth tergites broad and rounded 75
75. Outer division with a long filament from outer side near middle 76
Outer division without this structure 76*a*
76. Filament of outer division thick, arising near base, *alcocci* Bonne-Wepster and Bonne
This filament setaform, arising near the middle, *nicceriensis* Bonne-Wepster and Bonne
76*a*. Leaf large, broad, rounded triangular . . . . . *distinguendus* Dyar
Leaf small, ovate 76*b*
76*b*. Leaf of outer division inserted basal of the filaments . . . . . *inducens* Root
Leaf inserted apically with the filaments 77

77. Limbs of mesosomal plate rounded at tip . . . . . *conspirator* Dyar and Knab
These limbs sharply pointed . . . . . *fatuator* Dyar and Shannon
78. Mesosomal plate with long, wide arms 80
Mesosomal plate with short arms, cup-shaped expansion 79
79. Outer division of lobe with long and short filaments, two middle filaments and two outer filaments . . . . . *terebor* Dyar
This part with long filament, one middle filament and one outer filament, *saramacensis* Bonne-Wepster and Bonne
80. Outer division of lobe of side-piece with several filaments in outer group . . . 81
This part with only one broad elliptical filament, *macaronensis* Dyar and Núñez Tovar
81. Limbs of mesosomal plate rounded at tip . . . . . *elevator* Dyar and Knab
These limbs sharply pointed . . . . . *dornarum* Dyar and Shannon
82. Inner limb of mesosomal plate serrate on the margin 83
This part without serrations 87
83. Ninth tergites very large with long hairs at tip . . . . . *serratimargo* Root
Ninth tergites with fine hairs from tubercular bases 84
84. Third point of mesosomal plate medial on the stem . . . . . *phlogistus* Dyar
Third point subapical 85
85. Outer division of lobe without a leaf; clasper normal 86
This part with a leaf; tip of clasper with triangular fold . . . . *plectoporpe* Root
86. A horn-like point on the serrated area between outer limb and third spine, *maroniensis* Bonne-Wepster and Bonne
Without this structure . . . . . *albinensis* Bonne-Wepster and Bonne
87. Outer division of the lobe of side-piece with a slender *outer* limb bearing a leaf 88
This part with a slender *inner* arm or none 89
88. Leaf-like appendage large, solitary . . . *coppenamensis* Bonne-Wepster and Bonne
Leaf small with accompanying filaments . . . . . *phlabistus* Dyar
89. A slender-stemmed leaf arising from base of inner limb of outer lobe of side-piece . . . . . *corentynensis* Dyar
Without this structure 90
90. A leaf on the outer division 91
Without a leaf 100
91. Leaf large, expanded, equal or exceeding the filaments 92
Leaf medium or small, shorter than the filaments 94
92. Third spine of mesosomal plate subapical 93
Third spine medial on the stem . . . . . *inhibitator* Dyar and Knab
93. Inner arm of mesosomal plate coarsely denticulate, outer a long spine, third point similar, small; leaf arising with middle filament . . . . . *evansæ* Root
Not so formed 98
94. Outer division of lobe of side-piece with a distinct inner limb 95
Inner limb, if present, very short 99
95. Leaf arising between the limb and outer group of setæ 96
Leaf arising in the outer group of setæ 97
96. Basal hooks short; limbs of inner division of lobe appressed, *bastagarius* Dyar and Knab
Basal hooks long; limbs of inner division of lobe divaricate . . . . *vapulans* Dyar
97. Inner division of lobe of side-piece distinctly divided, though the lobes are short . . . . . *carcinophilus* Dyar and Knab
These lobes scarcely divided, though the base is conical and normal, *innominatus* Evans
98. Outer division of lobe of side-piece with no inner arm; a large terminal leaf, all filaments reduced; a large seta at base of division . . . . *manaosensis* Evans
Leaf in outer setal group, normal . . . . . *mutator* Dyar and Knab
Leaf large at base of outer setal group . . . . . *intricatus* Brèthes

99. A large leaf in the position of the middle filament . . . . . *comminutor* Dyar
A short fan-like leaf absorbing the shorter filaments . . . . . *eastor* Dyar

100. Third spine of mesosomal plate basal on the stem 101
This spine a stout hook, medial on the stem 103
This spine apical on the stem, with the other limbs 104

101. Outer division of lobe of side-piece with the apical and outer filaments separated, the middle filament between . . . . . *maxinocca* Dyar
Filaments condensed apically on the outer division 102

102. Mesosomal plate long . . . . . *chrysonotum* Dyar and Knab
This plate very short . . . . . *theobaldi* Lutz

103. Mesosomal plate furcate, one limb denticulate . . . . . *educator* Dyar and Knab
Mesosomal plate entire, the curved rim rugose . . . . . *curryi* Dyar

104. Mesosome with the inner arm dentate, the outer smooth; third horn just below the furcation 105
Mesosomal plate with the three points in a triangle, none dentate 106

105. Third horn large; middle filament of outer division of lobe of side-piece with a large insertion . . . . . *bibulus* Dyar
This horn small; middle filament without large insertion . . . . . *iolambdis* Dyar

106. Inner division of the lobe of side-pieec with the arms separated . *sursumptor* Dyar
These arms not separated, parallel on a common stem 107

107. Inner division with inner part much shorter than outer . . . . . *andricus* Root
Not so 108

108. Outer division of lobe of side-piece with the outer group of setæ on an arm or projection 109
Outer group of setæ not appearing elevated . . . . . *idottus* Dyar

109. Principal arm of mesosomal plate erect . . . . . *jonistes* Dyar
This arm transverse . . . . . *xivilis* Dyar

110. Apical lobe of side-piece present, as well as the basal arm 111
Without this structure 112

111. Clasper simple, club-shaped . . . . . *urichii* Coquillett
Clasper with the tip complicated and branched . . . . . *iridescens* Lutz

112. Clasper slightly swollen at tip with a spine 113
Clasper with the tip irregular and with rows of setæ,
secundus Bonne-Wepster and Bonne

113. A patch of dense setæ on side-piece beside the origin of basal arm,
{*infoliatus* Bonne-Wepster and Bonne
{*bihaicolus* Dyar and Núñez Tovar
Without this structure . . . . . *metempsytus* Dyar

The following described species are unknown in the male: *Spinosus, chrysothorax, nigrescens, indecorabilis, simulator, decorator, gravitator, nigricorpus, humilis, luteopleurus, lugens, azymus, fasciolatus, albipes.*

LARVA

1. Lateral comb of the eighth segment of many spines in a triangular patch . . . 2
Lateral comb of the spines in a single row 50

2. Antennæ uniformly shaped, the apical part not more slender 3
Antennæ with the tuft outwardly placed, the part beyond slender 9

3. Antennæ with the tuft at the outer third . . . . *daumastocampa* Dyar and Knab
Antennæ with the tuft at the middle of the joint 4

4. Air-tube very long (8 by 1), pecten teeth long spines; abdominal hairs in coarse tufts . . . . . *americanus* Neveu-Lemaire
Air-tube shorter, about four times as long as wide 5
Air-tube very short, about two and one-half times as long as wide 8

5. Antennæ with a tuft; anal segment smooth 6
Antennæ with a single hair; anal segment spined 7

6. Tufts of tube all beyond pecten . . . . . *territans* Walker
Two basal tufts of tube within pecten . . . . . *janitor* Theobald

7. Pecten without detached teeth; tufts all beyond it . . { *pleuristriatus* Theobald / *gairus* Root
Pecten with two detached teeth, covering the two basal tufts, *azymus* Dyar and Knab

8. Air-tube with four ventral and two dorsal tufts . . . . . *corniger* Theobald
Air-tube with eight ventral and no dorsal tufts, { *infoliatus* Bonne-Wepster and Bonne / *bihaicolus* Dyar and Núñez Tovar

9. Air-tube three times as long as wide or less 10
Air-tube four times as long as wide or over 11

10. Tufts of tube moderate . . . . . *interrogator* Dyar and Knab
Tufts of tube very long . . . . . *bonnæ* Dyar and Knab

11. Anal gills only two . . . . . *bahamensis* Dyar and Knab
Anal gills four, normal 12

12. Air-tube with three paired tufts posteriorly outwardly, the middle one moved laterad out of line, about the middle of the tube 13
Air-tube with four paired tufts outwardly, or more, the subapical one moved laterad out of line, at about the outer third of tube 14
Air-tube with three to ten paired tufts, none displaced, or the hairs obsolete or absent 22

13. First tuft of the tube well beyond the pecten . . . . . { *inflictus* Theobald / *mollis* Dyar and Knab
First tuft of tube close to or within the pecten . { *sphinx* Howard, Dyar, and Knab / *declarator* Dyar and Knab

14. Air-tube over five times as long as wide, without marked tapering 15
Air-tube less than 5 by 1, tapering terminally, subfusiform 21

15. Body glabrous 16
Body spicular pilose 20

16. Third tuft of tube but slightly out of line . . . . . *erythrothorax* Dyar
Third tuft of tube well out of line 17

17. Tube with five or six tufts 18
Tube with four tufts 19

18. Only the subapical tuft of tube out of line . . . . . *dolosus* Lynch Arribálzaga
Also the preceding tuft out of line . . . . . *stenolepis* Dyar and Knab

19. Two basal tufts of air-tube short, multiple . . . . . *salinarius* Coquillett
These tufts double, long . . . . . *pinarocampa* Dyar and Knab

20. Air-tube 8 by 1, the tufts three-haired and short; antennæ dark, *halilitator* Dyar and Knab
Air-tube 8 by 1; five tufts, the subapical one scarcely out of line, *chidesteri* Dyar
Air-tube 7 by 1 or less; hairs of tube often single . . . . . *nigripalpus* Theobald

21. Subdorsal abdominal hairs of segments 3 and 4 single or double, { *quinquefasciatus* Say / *pipiens* Linnæus
These hairs in threes . . . . . *stigmatosoma* Dyar

22. Air-tube with a subapical crown of spikes 23
Air-tube without this structure 24

23. Tube long, tufts very small and short . . *brevispinosus* Bonne-Wepster and Bonne
Tube less long, the tufts moderate . . . . . { *coronator* Dyar and Knab / *spinosus* Lutz / *maracayensis* Evans

24. Air-tube with long well-defined tufts 25
Air-tube with small double or single hairs or bare 43

25. Body spicular pilose 26
Body glabrous 36

26. Comb of eighth segment with several large spines among small ones . *dunni* Dyar
Comb not so modified 27

27. Three to five tufts on posterior margin of tube subequal in length, short . . . 28
These tufts with the basal one long, the rest progressively shorter 30

28. Lateral abdominal hairs in twos on segments 3 to 5 29
These hairs in threes; four tufts on tube . . . . . *egcymon* Dyar
These hairs in fours in this location . . . . . *atratus* Theobald

29. Air-tube 11 by 1; upper head-hairs double . . . . . *derivator* Dyar and Knab
Air-tube 8 by 1; head-hairs multiple . . . . . *surinamensis* Dyar

30. Comb of eighth segment only two rows deep . . . { *chrysonotum* Dyar and Knab / *peccator* Dyar and Knab }
Comb three rows deep, at least centrally 31

31. Upper head-hair in fives or sixes . . . . . *inhibitator* Dyar and Knab
Upper head-hair triple 32
This hair single or double 35

32. Tufts of tube short . . . . . { *evansæ* Root / *phlogistus* Dyar }
Tufts of tube long 33

33. Body hairy; upper head-tuft of three long hairs . . . . { *mutator* Dyar and Knab / *sursumptor* Dyar }
Thorax only hairy 34

34. Upper head-tuft in fours, short . . . . . *bastagarius* Dyar and Knab
Upper head-tuft in twos; tube rather short . . . . . *bibulus* Dyar

35. Pecten of tube dense and fine . . . . . { *conspirator* Dyar and Knab / *curryi* Dyar / *educator* Dyar and Knab }
Pecten sparse and open . . . . . { *elevator* Dyar and Knab / *ybarmis* Dyar / *sarramacensis* Bonne-Wepster and Bonne / *albinensis* Bonne-Wepster and Bonne / *xivilis* Dyar }

36. Air-tube concave, the tip expanded 37
Air-tube regularly tapered 39

37. Pecten of air-tube short; lateral comb a large patch . . . . . *apicalis* Adams
Pecten of long spines; lateral comb scarcely over two rows deep,
simulator Dyar and Knab

38. Comb with coarse spines beyond small ones; upper head-hair in sixes, coarse, feathered, lower single . . . . . *aikenii* Aiken
Not so constructed 39

39. Both head-hairs single . . . . . { *gravitator* Dyar and Knab / *coppenamensis* Bonne-Wepster and Bonne }
Upper head-hairs triple, lower single 40
Both head-hairs triple or multiple 42

40. Tufts of tube diminishing outwardly 41
Tufts of tube all small . . . . . { *nicceriensis* Bonne-Wepster and Bonne / *maxinocca* Dyar }

41. Lateral abdominal hairs in four tufts, outer less than half of first,
decorator Dyar and Knab
Lateral abdominal hairs in five tufts, outer over half first . . . *innominatus* Evans

42. Lateral abdominal hairs in threes after second segment . . . . *tarsalis* Coquillett
These hairs in twos after second segment . . . . . *secutor* Theobald
These hairs in twos on segments 3 and 4, single on 5 and 6, *alcocci* Bonne-Wepster and Bonne

43. Air-tube with slight tufts 44
Air-tube with single hairs or bare 46

44. Pecten dense and fine; lateral hairs in threes after second segment, *carcinophilus* Dyar and Knab
Pecten sparse and long 45

45. Lateral abdominal hairs in twos after second segment . { *rejector* Dyar and Knab / *jenningsi* Dyar and Knab
These hairs in fours . . . . . { *imitator* Theobald / *ocellatus* Theobald / *chryselatus* Dyar and Knab

46. Pecten of the air-tube sparse and long 47
Pecten fine and dense 48

47. Pecten of the air-tube of five teeth on basal seventh of tube, *inimitabilis* Dyar and Knab
Pecten of eight teeth on basal fifth of tube . . . . . *consolator* Dyar and Knab
Pecten numerous, teeth dentate on one side . . . . . *ruffinis* Dyar and Shannon

48. Lateral abdominal hairs single on segments 3 to 5 . . . *corrigani* Dyar and Knab
These hairs double or in threes on these segments 49

49. Air-tube with four rather long single hairs . . . . { *restrictor* Dyar and Knab / *conservator* Dyar and Knab
Air-tube with a single small hair or none . . . . . *latisquama* Coquillett

50. Antennæ with the tuft at the middle, slight 51
Antennæ with the tuft beyond the middle, the part beyond slender 52

51. Air-tube with 15 tufts . . . . . *urichii* Coquillett
Air-tube with not over ten tufts posteriorly . { *secundus* Bonne-Wepster and Bonne / *iridescens* Lutz

52. Air-tube over 4 by 1, slender, with slight terminal setæ, *erraticus* Dyar and Knab
Air-tube not over 4 by 1, tapering, slightly curved forward, with two stout hooks at tip 53

53. Bars of comb in a curved row . . . . . { *pilosus* Dyar and Knab / *unicornis* Root
Bars of comb in a straight row . . . . . *caudelli* Dyar and Knab

The following species are unknown in the larva: *Trifidus, menytes, hesitator, alogistus, innovator, originator, tæniopus, opisthopus, mychonde, automartus, distinguendus, inducens, serratimargo, plectoporpe, chrysothorax, andricus, antillum-magnorum, lygrus, aphylactus, hedys, acharystus, acceleransans, pastharus, epanatasis, inadmirabilis, indecorabilis, clarki, thomasi, bequaerti, anips, holoneus, terebor, fatuator, dornarum, macaronesis, maroniensis, tecmarsis, phlabistus, corentynensis, manaosensis, vapulans, comminutor, eastor, theobaldi, iolambdis, jonistes, idottus, intrincatus, nigrescens, nigricorpus, humilis, lugens, zeteci, commevynensis, spissipes, homœopas, loturus, lutepleurus, metempystus, amazonensis, neglectus, fasciolatus, debilis, escomeli, articularis, apicinus, duplicator, virgultus, bidens, lepostenis, albipes, federalis, brethesi, interfor, maxi, saltanensis.*

Subgenus CARROLLELLA Lutz

CULEX (CARROLLELLA) IRIDESCENS (Lutz)

CARROLLIA IRIDESCENS Lutz, Imp. Med., 81, 1905.
Carrollia iridescens Theobald, Mon. Culic., iv, 207, 1907.
Culex iridescens Peryassú, Os Culic. do Braz., 167 and 343, fig. 38, 1908.
Carrollia iridescens Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 144, 1911.
Carrollia iridescens Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 462, 1915.

Carrolia iridescens Lutz, Mem. Inst. O. Cruz, x, 87, 1919.
Culex (Carrollia) iridescens Dyar, Ins. Ins. Mens., vi, 108, 1918.
Culex (Carrollia) iridescens Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 170, 1920.
CULEX (CARROLLIA) BONNEI Dyar, Ins. Ins. Mens., ix, 155, 1921.
Culex (Carrollia) iridescens Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 200, 1925.

Female—Proboscis stout, enlarged at tip, black with blue reflection. Occiput with black scales. Mesonotum with sparse dark brown scales; the pleuræ pearly blue above from the anterior angle of mesonotum, black in the middle, the coxæ pale yellowish. Abdomen black, the segments with pale yellowish basal bands, not reaching the sides; laterally a series of round metallic purple, coppery, or silvery spots; venter yellowish white, the segments with apical black bands, the posterior segments projecting ventrally. Legs black with bronzy and blue reflection; mid femora with two metallic purple spots. Wing-scales narrow, blackish.

Male—Coloration of the female. Palpi not as long as the proboscis, blackish. Hypopygium (Plate LXVI, Fig. 215): Side-piece rather small, elliptical, a stout seta at tip; inner division of the lobe of side-piece a long arm with two crooked leaves at tip; outer division a shorter but still long arm, bearing four flattened filaments. Clasper with long slender stem, the tip curved, expanded, and distorted, with a spine and reversed tuft; a triangular expansion with fimbriate edge and appended seta and filament. Tenth sternites narrow, denticulate at tip, flattened comb-shaped. Mesosome with two pairs of curved appendages.

Larva (Plate LXVI, Fig. 215)—Head rounded quadrate; antennæ long, slender, a tuft beyond the middle. Head-hairs in a transverse row, middle and anteantennal tufts short, multiple, outer tuft long, double. Lateral comb of the eighth segment of about eleven long narrow scales in a straight row. Air-tube five times as long as wide, the pecten reaching one-third, a row of about ten three- or four-haired tufts along posterior margin. Anal segment as long as wide, ringed by the plate; ventral brush posterior; dorsal tuft two long and two short hairs on each side. Anal gills longer than the segment, tapered.

Surinam and Brazil.

The larvæ were found in an old tin, presumably inhabitants of tree-holes. The male and larval characters have been taken from Surinam specimens, the Brazilian form being undescribed except in the female. It is assumed that they are the same, but if not, the name *bonnei* is available for the Surinam form.

CULEX (CARROLLELLA) SECUNDUS Bonne-Wepster and Bonne

Carrollia iridescens Howard, Dyar, and Knab (not Lutz), Mosq. No. and Cent. Am. and W. I., iii, 462, 1915.
Culex (Carrollia) iridescens Dyar, Ins. Ins. Mens., vi, 108, 1918.
CULEX (CARROLLIA) SECUNDA Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 170, 1920.
Culex (Carrollia) secunda Dyar, Ins. Ins. Mens., xiii, 176, 1925.
Culex (Carrollia) secunda Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 203, 1925.

Female—Proboscis stout, enlarged at tip, black with blue reflection.

Occiput with black scales. Mesonotum with sparse dark brown scales, the pleuræ pearly blue above from the anterior angle of mesonotum, black in the middle, the coxæ pale yellowish. Abdomen black, the segments with pale yellowish basal bands, not reaching the sides; laterally a series of round metallic purple, coppery, or silvery spots; venter yellowish white, the segments with apical black bands, the posterior segments projecting ventrally. Legs black with bronzy and blue reflection, mid femora with two metallic purple spots. Wing-scales narrow, blackish.

Male—Coloration of the female. Palpi not as long as the proboscis, blackish. Hypopygium (Plate LXVI, Fig. 216): Side-piece rather small, elliptical, inner division of lobe of side-piece a long tapering arm with two distorted leaves at tip; outer division represented by a large spine from a conical base. Clasper with even curved stem, tip roundedly expanded, cleft, a horn and setæ in the cleft; upper shorter arm with horn and appendiculate spine; lower longer one pointed, with many reversed hairs. Tenth sternites slender, curved, comb-shaped, but with only three teeth. Ninth tergites a slight elevation with four fine setæ. Mesosome with two curved bridge-like parts and two pairs of appendages.

Larva (Plate LXVI, Fig. 216)—Head rounded quadrate; antennæ long, slender, a single hair beyond the middle. Head-hairs in a transverse row, middle and anteantennal short and multiple, outer longer, in four. Lateral comb of the eighth segment of six long, narrow scales in a straight row. Air-tube about five times as long as wide, pecten reaching one-third; about nine multiple tufts along posterior border. Anal segment as long as wide, ringed by the plate; ventral brush posterior; dorsal tuft of one long plus two short, and one long hair on each side. Anal gills longer than the segment, tapered.

Panama.

This species was identified as *iridescens* in the monograph, but doubtless wrongly. The larvæ occurred in bamboo joints, since the destruction of which they are occasionally found in tree-holes.

CULEX (CARROLLELLA) METEMPSYTUS Dyar

Culex (Carrollia) metempsyta Dyar, Ins. Ins. Mens., ix, 154, 1921.

Culex (Carrollia) metempsyta Dyar, Ins. Ins. Mens., xiii, 176, 1925.

Culex (Carrollia) metempsyta Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 204, 1925.

Female—Proboscis stout, enlarged at tip, black with blue reflection. Occiput with black scales. Mesonotum with sparse dark brown scales, the pleuræ pearly blue above from the anterior angle of mesonotum, black in the middle, the coxæ pale yellowish. Abdomen black, the segments with pale yellowish basal bands, not reaching the sides; laterally a series of round metallic purple, coppery, or silvery spots; venter yellowish white, the segments with apical black bands, the posterior segments projecting ventrally. Legs black with bronzy and blue reflection, mid femora with two metallic purple spots. Wing-scales narrow, blackish.

Male—Coloration of the female. Palpi not as long as the proboscis, blackish. Hypopygium (Plate LXVI, Fig. 217): Side-piece rather small, elliptical, a stout seta at tip; inner division of lobe of side-piece basal, a long column with scattered setæ; two large distorted leaves at tip, one

inserted a little basad of the other. Clasper straight, thick, the tip rounded over, scarcely enlarged, the spine inserted at side of tip, the apical third below it wrinkled and irregular. Tenth sternites very slender, with brush-shaped spinous tip. Lateral plates of mesosome large T-shaped, not forming a bridge; within two plates, one pointed, the other broad, membranous.

Larva—Unknown.

Costa Rica.

The larvæ occurred in bamboo, but none was isolated.

CULEX (CARROLLELLA) URICHII (Coquillett)

MELANOCONION URICHII Coquillett, Can. Ent., xxxviii, 61, 1906.
Melanoconion (?) *urichii* Theobald, Mon. Culic., v, 458, 1910.
Carrollia urichii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 464, 1915.
Culex (Carrollia) urichii Dyar, Ins. Ins. Mens., vi, 108, 1918.
Culex (Carrollia) urichii Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 197, 1925.

Female—Proboscis stout, enlarged at tip, black with blue reflection. Occiput with black scales. Mesonotum with sparse dark brown scales, the pleuræ pearly blue above from the anterior angle of mesonotum, black in the middle, the coxæ pale yellowish. Abdomen black, the dorsum a little paler than the sides; laterally a series of round purple metallic spots; venter yellowish white, the segments with apical black bands, the posterior segments projecting ventrally. Legs black with bronzy and green reflections, hind pair with the fourth tarsal white on its basal half, mid femora with two metallic purple spots. Wing-scales narrow, blackish, the wing membrane slightly infuscated.

Male—Coloration of the female. Palpi slender, not as long as the proboscis. Hypopygium (Plate LXVI, Fig. 218): Side-piece slender, conical; inner division of the lobe at basal third, long, wide at base, bearing two filaments at summit with widened truncate tips; outer division a long ridge, running from outer third of side-piece nearly to apex, bearing a row of hairs, basally an elevation with two flat filaments, and apically two large ligulate filaments. Clasper thick, bulbous at tip, a point on one side bearing a minute spine. Tenth sternites narrow, with about four flattened teeth at tip. Mesosome with a pair of thick appendages which are curved over at tip.

Larva (Plate LXVI, Fig. 218)—Head rounded, nearly circular; antennæ slender, a two-haired tuft near the middle. Head-hairs in a curved row, middle tuft multiple, short, outer in two, long, anteantennal in about six. Lateral comb of the eighth segment of about twelve bars in a straight row. Air-tube five times as long as wide, pecten reaching nearly a third; some fifteen large tufts along the posterior border. Anal segment rather longer than wide, ringed by the plate, the brush posterior; dorsal tuft a long hair and brush on each side; lateral hair single. Anal gills longer than the segment, tapered.

Trinidad and Surinam.

The larvæ occur in bamboo, tree-holes, and other small containers where the water is rich in food material. The adult is not known to bite.

CULEX (CARROLLELLA) INFOLIATUS Bonne-Wepster and Bonne

CULEX (CARROLLIA) INFOLIATA Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 170, 1920.
Culex (Carrollia) infoliata Bonne and Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 205, 1925.

Female—Proboscis moderate, swollen at the tip, black. Occiput with

dark scales. Mesonotum thinly dark-scaled, the anterior angles and pleuræ sordid luteous, the latter with a small dark mark. Abdomen black, somewhat pale above, the sides velvety and with a row of round purple metallic spots; venter white, the segments narrowly black at their apices, the posterior ones projecting ventrally. Legs black, the mid femora with two metallic purple spots. Wing-scales narrow, dark.

Male—Coloration of the female. The palpi considerably shorter than the proboscis. Hypopygium (Plate LXVII, Fig. 219): Side-piece moderate, conical; inner division of the lobe central, columnar, with two distorted leaves at tip; a patch of setæ laterad of it; a spine at tip of side-piece. Clasper long, slender, bulbous at tip, with a horn and appendiculate spine below it. Tenth sternites slender, with four flattened teeth at tip. Mesosome with two pairs of flat plates.

Larva (Plate LXVII, Fig. 219)—Head rounded, nearly circular in outline; antennæ slender, with a small tuft near middle. Lateral comb of the eighth segment of about twelve scales in a patch three rows deep. Air-tube stout, three times as long as wide, pecten reaching over a third; about eight long two- to three-haired tufts along posterior border. Anal segment wider than long, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and five-haired brush on each side. Anal gills twice as long as the segment, pointed.

Surinam.

The larvæ were found in a tree-hole.

CULEX (CARROLLELLA) BIHAICOLUS Dyar and Núñez Tovar

CULEX (CARROLLELLA) BIHAICOLUS Dyar and Núñez Tovar, Notas sobre Nuev. Dipt. Haem. de Venez., 4, 1927.

CULEX (CARROLLELLA) BIHAICOLUS Dyar and Núñez Tovar, Am. Journ. Hyg., viii, 91, 1928.

Female—Proboscis black, slightly swollen at tip. Mesonotum blackish, the pleuræ green. Abdomen blackish above, with lateral bluish silvery patches centrally on the segments; venter pale green. Legs black, femora pale at base, the mid pair with two violet spots outwardly, the hind pair with a blue streak above. Wing-scales black, rather broadly linear.

Male—Coloration of the female. Palpi about four-fifths as long as the proboscis, slender, black. Hypopygium (Plate LXVII, Fig. 220): Side-piece conical, rather long; a long arm from basal third bearing two short, distorted filaments; beside and beyond this is a dense patch of setæ, roundedly elevated and bearing outwardly two long blades from short pedicels. Clasper widened and flat outwardly, truncate, the single terminal spine laterally directed along the truncation. Tenth sternites slender, comb-shaped, very few toothed. Ninth tergites very small, finger-shaped, bearing two fine, slender hairs and one at base. Mesosome with a pair of membranous horns and another chitinous pair, longitudinally striate, and an elliptical central portion.

Larva—Head rounded, nearly circular in outline. Antennæ slender, uniform, with a minute tuft near the middle. Head-hairs nearly in a transverse line; upper multiple, short, lower single, long, with irregular feathers at base, anteantennal in six. Lateral comb of the eighth segment of about thirty scales in a patch four rows deep centrally. Air-tube stout, three times as long as wide, tapered at the tip, with five or six pairs of posterior tufts, long, coarse, three-haired. Anal segment wider than long, ringed by

the plate; ventral brush posterior, slight; dorsal tuft a long hair and four-haired brush on each side. Anal gills four or five times as long as the segment, pointed at tip.

Venezuela.

Bred from larvæ found in the fluid in the flower-bracts of the red-flowered Heliconia *(Bihai)*. Very close to *infoliatus* Bonne-Wepster and Bonne, but the hypopygium of the male has the hairy patch of the side-piece farther out, and forming less of a prominence. The clasper, also, is less widened, and the larvæ differ in small details.

Subgenus AËDINUS Lutz

CULEX (AËDINUS) AMAZONENSIS Lutz

AËDINUS AMAZONENSIS Lutz, in Bourroul, Mosq. do Braz., 46, 1904.
Aëdinus amazonensis Lutz, Imp. Med., March 25, 1905.
Aëdinus amazonensis Blanchard, Les Moust., 633, 1905.
Aëdinus amazonensis Peryassú, Os Mosq. do Braz., 253, 1908.
Aëdinus amazonensis Theobald, Mon. Culic., v, 487, 1910.
Aëdinus amazonensis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 223, 1911.
CULEX (EUBONNEA) TAPENA Dyar, Ins. Ins. Mens., vii, 150, 1919.
CULEX (CARROLLIA) PARAPLESIA Dyar, Ins. Ins. Mens., vii, 150, 1922.
CULEX HILDEBRANDI Evans, Ann. Trop. Med. and Par., xvii, 377, 1923.
Culex (Aëdinus) amazonensis Dyar, Ins. Ins. Mens., xi, 190, 1923.
Culex (Aëdinus) amazonensis Dyar, Ins. Ins. Mens., xii, 183, 1924.
Culex (Carrollia) amazonensis Dyar, Ins. Ins. Mens., xiii, 176, 1925.
Culex (Aëdinus) amazonensis Dyar, Ins. Ins. Mens., xiii, 213, 1925.

Female—Proboscis rather long, slender, uniform, black. Occiput with flat black scales. Mesonotum yellowish in the integument, showing on anterior angles and pleuræ, the dorsum with dense, dark brown scales. Abdomen black. Legs black, femora broadly pale except at apex. Wing-scales rather broadly ovate, all dark.

Male—Coloration of the female. Palpi as short as in the female. Hypopygium (Plate LXVII, Fig. 221): Side-piece elliptical, rounded at tip; basal division of lobe at basal third, stout, columnar, with a single large flame-shaped appendage; four or five coarse blade-shaped spines between it and apex. Clasper stout, widened to apical third, then sharply narrowed to tip, with rather long appendiculate spine just subterminal. Tenth sternites broad, one margin thickened, the tip with a row of about ten flat, blunt teeth. Ninth tergites flat, long, with a row of fine setæ at tip. Mesosome with small basal plates jointed to the parameres; a pair of slender central rods.

Larva—Unknown.

Colombia, Venezuela, Surinam, Brazil.

A pupa was found in a pool containing much vegetation, but the larva has not been observed.

CULEX (AËDINUS) ACCELERANS Root

CULEX (AËDINUS) ACCELERANS Root, Am. Journ. Hyg., vii, 581, 1927.

Female—Unknown.

Male—Proboscis moderate, flattened and swollen at tip. Palpi very short, one-sixth of the proboscis. Occiput with narrow, curved scales over the vertex, dull yellowish, with flat black and white ones on the sides. Mesonotum

dark brown, with narrow, curved dark bronzy brown scales. Abdomen missing. Wing-scales ovate, broadly so outwardly on second to fourth veins. Hypopygium (Plate LXVII, Fig. 222): Side-piece cylindrical, parallel sided, truncate at tip, normally setose; inner division of the lobe a long, slender arm bearing two appressed filaments, the tips of which are only slightly distorted; outer division absent. Clasper rather thick, uniform, the tip sharply narrowed with rather long appendiculate, not quite terminal, spine. Tenth sternites with narrow margin, comb-shaped, with about six flat, blunt teeth. Ninth tergites long, columnar, membranous, half as long as the side-piece, with minute setæ from small tubercular bases along the terminal margin. Mesosomal plate single, long, with acicular tip.

Larva—Unknown.

Brazil (Porto das Caixas).

Described from Dr. Root's unique type.

Subgenus MOCHLOSTYRAX Dyar and Knab

Section DINOPORPA Dyar*

CULEX (MOCHLOSTYRAX) TRIFIDUS Dyar

CULEX (HELCOPORPA) TRIFIDUS Dyar, Ins. Ins. Mens., ix, 115, Pl. II, Fig. 6, 1921.
Culex (Mochlostyrax) trifidus Dyar, Ins. Ins. Mens., xiii, 170, 1925.
Culex (Helcoporpa) trifidus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 282, 1925.

Female—Proboscis moderate, swollen at the tip, black with bronzy reflection. Occiput with a large area of narrow scales on vertex, flat black scales on the sides and white ones below. Mesonotum black with dark brown scales, pleuræ very dark, only the coxæ lighter or greenish. Abdomen black. Legs black with bronzy reflection, only the femora paler at base. Wing-scales linear or very narrowly ovate, all dark.

Male—Coloration of the female. The palpi are a little longer than the proboscis, slender, black. Hypopygium (Plate LXVIII, Fig. 223): Side-piece constricted at base, broadly elliptical; inner division of the lobe shortly columnar with two large triangularly truncate-tipped filaments, one inserted basad of the other; outer division similar, shorter, with one triangular-tipped filament, a rod, and an elliptical leaf. Clasper broad, produced into three arms in unequal planes, the third arm being the main shaft and bearing a small subapical appendiculate spine. Tenth sternites represented by the thickened margin, comb-shaped, with about fifteen fine blunt teeth. Ninth tergites long, triangularly widened on outer half, infuscated, with one or two small setæ at tip. Mesosome with large heart-shaped basal plates articulated to small flat parameres, recurved basal hooks, and a pair of long, slender rods in the center.

Larva—Unknown.

Costa Rica (Escasuú, Tiribí, and Rio Ciruelas).

The larvæ occurred in ground-pools in the rainy season. Discovered by Dr. Anastasio Alfaro, and not known to occur elsewhere.

Section HELCOPORPA Dyar

CULEX (MOCHLOSTYRAX) MENYTES Dyar

CULEX (HELCOPORPA) MENYTES Dyar, Ins. Ins. Mens., vi, 125, 1918.
Culex (Mochlostyrax) menytes Dyar, Ins. Ins. Mens., xiii, 170, 1925.
Culex (Helcoporpa) menytes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 282, 1925.

*New name.

Female—Unknown.

Male—Proboscis moderate, swollen at the tip, black. Palpi exceeding the proboscis by nearly the length of the last two joints, slender, black. Occiput with flat black scales which take a white reflection in oblique light. Mesonotum black with dark brown scales; pleuræ also dark, only the coxæ pale. Abdomen black, the venter duller black. Legs dark brown, including the femora to base, tarsi blacker. Wing-scales broadly ovate, all dark. Hypopygium (Plate LXVIII, Fig. 224): Side-piece narrow at base, ovate, the tip narrow; inner division of the lobe columnar, twice as long as wide, with two long, distorted, hooked-tipped filaments inserted side by side; outer division columnar, bearing a rounded triangular large leaf. Clasper slender, widened at tip and obliquely elliptically truncate, the upper margin of the truncation bearing a horn and slender spine. Tenth sternites represented by the thickend margin with about fifteen flattened blunt-tipped teeth, the tip of the margin recurved. Ninth tergites large, conical, bearing many fine setæ from tubercles. The mesosome is confused in the mount.

Larva—Unknown.

Panama (Trinidad River).

Known only by a single captured male.

Section MOCHLOSTYRAX Dyar and Knab

CULEX (MOCHLOSTYRAX) CAUDELLI Dyar and Knab

MOCHLOSTYRAX CAUDELLI Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 224, 1906.

Culex caudelli Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., 395, 1915.

CULEX (MOCHLOSTYRAX) MULTISPINOSUS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 177, 1920.

Culex (Mochlostyrax) caudelli Dyar, Ins. Ins. Mens., xii, 185, 1924.

Culex (Mochlostyrax) multispinosus Dyar, Ins. Ins. Mens., xii, 185, 1924.

Culex (Mochlostyrax) multispinosus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 312, 1925.

Culex (Mochlostyrax) caudelli Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 313, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with a narrow triangle of narrow bronzy scales at vertex, flat black ones below, a white spot on the side below. Mesonotum with bronzy brown scales; pleuræ blackish or tinged with green, coxæ not very pale. Abdomen black with bronzy reflection; large rounded basal segmental lateral white patches; venter with the segments white at base, black at tip, the white part joining with the lateral white to form very distinct bands. Legs black with slight bronzy reflection, the femora pale below. Wing-scales stiffly linear, on the second to fourth veins outwardly narrowly ovate.

Male—Coloration of the female. Palpi slender, exceeding the proboscis by about the length of the last two joints, black, a little whitish ring at the tip of the long joint. Hypopygium (Plate LXVIII, Fig. 225): Side-piece moderate, curved at tip and rounded; inner division of lobe of side-piece furcate, the limbs about equal, each with a long distorted hooked-tipped

filament; outer division of the lobe shortly columnar, not distinctly branched, but with long and short inner filaments, middle filament and group of about four outer, of which one is flattened spatulate, not leaf-like, the others pointed. Clasper constricted at basal third, the tip lengthly foot-shaped, minutely pilose on the margin, spine subapical, appendiculate. Tenth sternites rod-like, the triangular tip with a little group of apparently pointed spines. Ninth tergites much elongated, narrowed in the middle, bulbous at tip, with many long hairs, the longest of which reach the tip of side-piece. Basal plates large, nearly circular, parameres moderate, basal hooks small, recurved; mesosomal plate flat, bifid, arcuate; a long, straight spine subapically continues the stem.

Larva (Plate LXVIII, Fig. 225)—Head transverse, rounded quadrate; antennæ long, longer than the head, a large tuft at the outer third, the part beyond it more slender than the basal part, which is spinulated; terminal spines long. Head-hairs in threes, short, the median hairs in small tufts, anteantennal tufts in five, long. Lateral comb of the eighth segment of about fourteen bars in an even curved row. Air-tube about three and a half times as long as wide, gently curved forward and tapered; pecten on basal third; about eight tufts on posterior margin, the basal one long, the rest evenly decreasing, three tufts within the pecten; two small tufts on lateral aspect. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair, and a long and short one on each side; lateral hair small, double. Anal gills longer than the segment, slender, tapered.

Trinidad and Surinam.

The larvæ were found in a large open ground-pool.

CULEX (MOCHLOSTYRAX) ALOGISTUS Dyar

CULEX (MOCHLOSTYRAX) ALOGISTUS Dyar, Ins. Ins. Mens., vi, 126, 1918.
Culex (Mochlostyrax) alogistus Dyar, Ins. Ins. Mens., xii, 185, 1924.
Culex (Mochlostyrax) alogistus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 308. 1925.
CULEX (MOCHLOSTYRAX) MEGAPUS Root, Am. Journ. Hyg., vii, 595, 1927.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales which take a white reflection, a white spot on the side below. Mesonotum with bronzy brown scales; pleuræ blackish or tinged with green, coxæ not very pale. Abdomen black with bronzy reflection; large rounded basal segmental lateral white patches; venter with the segments white at base, black at tip, the white part joining with the lateral white to form very distinct bands. Legs black with slight bronzy reflection, the femora pale below. Wing-scales stiffly linear, on the second to fourth veins outwardly narrowly ovate.

Male—Coloration of the female. Palpi slender, exceeding the proboscis by about the length of the last two joints, black. Hypopygium (Plate LXVIII, Fig. 226; Plate LXIX, Fig. 229): Side-piece moderate, curved at tip and rounded; inner division of lobe furcate, the limbs about equal, each with a long, distorted, hooked-tipped filament; outer division of the lobe shortly columnar, not distinctly branched, but with long and short inner filaments, middle filament and group of about four outer, of which one is flattened spatulate, the others pointed. Clasper constricted at basal third,

the tip lengthly foot-shaped, minutely pilose on the margin, spine subapical, appendiculate. Tenth sternites represented by the narrow margin, comb-shaped, with about ten flat, blunt teeth. Ninth tergites elongate conical, with very long hairs which reach tip of side-piece. Mesosomal plate slender, forked at tip, with a closely subapical rather long point.

Larva—Unknown.

Panama, Surinam, and Brazil (Angra dos Reis).

The Bonnes state that the larva is like that of *pilosus (curopinensis)*, but the adult is so similar to *caudelli*, that I think some confusion may have occurred. This may be *caudelli*, but the much shorter, conical ninth tergites and slight differences in the mesosomal plate cause me to hold it apart.

Mr. W. H. W. Komp has shown me a slide of this species, made from a specimen taken by himself at Almirante, Republic of Panama, February 1928.

CULEX (MOCHLOSTYRAX) HESITATOR Dyar and Knab

CULEX HESITATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 205, 1907.
Culex hesitator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 319, 1915.
CULEX (MOCHLOSTYRAX) COLOMBIENSIS Dyar, Ins. Ins. Mens., xii, 184, 1924.
Culex (Mochlostyrax) hesitator Dyar, Ins. Ins. Mens., xii, 186, 1924.
Culex (Mochlostyrax) hesitator Dyar, Ins. Ins. Mens., xiii, 171, 1925.
Culex (Mochlostyrax) hesitator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 314, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales which take a white reflection, a white patch on the side below. Mesonotum with dark brown scales; pleuræ blackish or tinged with green, coxæ not very pale. Abdomen black with bronzy reflection; large rounded basal segmental lateral white patches; venter with the segments white at base, black at tip, the white part joining with the lateral white to form a very distinct band. Legs black with slight bronzy reflection, the femora pale below, narrowly white at tip. Wing-scales stiffly linear, on the second to fourth veins outwardly narrowly ovate.

Male—Coloration of the female. Palpi slender, exceeding the proboscis by the length of the last two joints, black. Hypopygium (Plate LXVIII, Fig. 227): Side-piece moderate, curved at tip and rounded; inner division of the lobe furcate, inner limb shorter than the outer, each with a long, distorted, hooked-tipped filament; outer division of the lobe shortly columnar with a short inner branch bearing long and short filaments; middle filament broad; a group of about four outer filaments. Clasper with the tip shortly and broadly foot-shaped, almost spherical, minutely pilose outwardly, with appendiculate spine. Tenth sternites slender, comb-shaped, with a row of flat, blunt teeth at tip. Ninth tergites a broad plate with oval lacuna, the tergites rising from the corners of this, moderate, conical, with many setæ. Basal plates large, triangular, jointed to small, flat parameres; basal hooks recurved; mesosomal plate with three points at tip, the apical one radiate, the inner long and sharp.

Larva—Unknown.

Panama (Las Cascades and Matachin), Colombia (Murindo), Venezuela (Maracay).

A rare species. The larvæ occur in pools containing vegetation, but they

have not been isolated. Dr. F. M. Root collected the species in Venezuela in 1927.

CULEX (MOCHLOSTYRAX) PILOSUS Dyar and Knab

MOCHLOSTYRAX PILOSUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 223, 1906.
MOCHLOSTYRAX CUBENSIS Dyar and Knab (not *Culex cubensis* Bigot), Journ. N. Y. Ent. Soc., xiv, 223, 1906.
MOCHLOSTYRAX FLORIDANUS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 171, 1906.
MOCHLOSTYRAX JAMAICENSIS Grabham (not *Culex jamaicensis* Theobald), Can. Ent., xxxviii, 318, 1906.
CULEX AGITATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 100, 1907.
CULEX DECEPTOR Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 257, 1909.
CULEX REDUCTOR Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 257, 1909.
CULEX IGNOBILIS Dyar and Knab, Proc. Ent. Soc. Wash., xi, 39, 1909.
Culex agitator, ignobilis, pilosus, reductor, floridanus, deceptor, and MASTIGIA Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 384, 390, 393, 399, 402, 408, and 426, 1915.
Culex (Mochlostyrax) floridanus Dyar and Knab, Ins. Ins. Mens., v, 180, 1917.
Culex floridanus Dyar and Barret, Ins. Ins. Mens., vi, 120, 1918.
CULEX (MOCHLOSTYRAX) CUROPINENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 177, 1920.
Culex (Mochlostyrax) floridanus Dyar, Proc. U. S. Nat. Mus., lxii, 11, 1922.
Culex floridanus Komp, Ins. Ins. Mens., xi, 133, 1923.
Culex (Mochlostyrax) pilosus Dyar, Ins. Ins. Mens., xii, 186, 1924.
Culex (Mochlostyrax) curopinensis and *reductor* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 311 and 313, 1925.
Culex (Mochlostyrax) pilosus Dyar, Ins. Ins. Mens., xiii, 29, 1925.
Culex (Mochlostyrax) pilosus Dyar, Ins. Ins. Mens., xiii, 170, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection in certain lights. Mesonotum blackish, with bronzy brown scales; pleuræ blackish or tinged with green, coxæ not very pale. Abdomen black with bronzy reflection; lateral basal segmental white patches; venter with the segments white at base, black at tip, the white part joining with the lateral white to form distinct bands. Legs black with slight bronzy reflection, the femora pale below. Wing-scales stiffly linear, on the second to fourth veins outwardly ovate.

Male—Coloration of the female. Palpi slender, exceeding the proboscis by the length of the last two joints, black. Hypopygium (Plate LXIX, Fig. 228): Side-piece elliptical, stout, narrowed at base and tip; inner division of the lobe widely furcate, the inner limb shorter than the outer; outer division shortly columnar, with a slender inner arm with long and short filaments; middle filament and group of four outer, all closely appressed. Clasper rather long, attenuated in the middle, the tip widely elliptical, minutely pilose on outer margin, with horn and appendiculate spine at tip. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth at tip. Ninth tergites a broad plate with oval lacuna, the tergites rising from the corners of this small, with only one or two setæ. Mesosomal plate with three points, the inner one long and sharp.

Larva (Plate LXIX, Fig. 228; Plate LXXXIV, Fig. 293)—Head transverse, rounded quadrate; antennæ longer than the head with a large tuft at outer third, beyond which the shaft is slender; basal part spinulated, terminal spines long. Head-hairs upper in two, lower single, median pair

single, short, anteantennal tuft in four. Lateral comb of the eighth segment of eight to twelve elliptical pointed scales in an arc. Air-tube about three times as long as wide, tapered, slightly curved forward; pecten reaching over the basal third; about eight hair-tufts on posterior margin, long at the base, progressively shorter outwardly; two small tufts on the side. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side; lateral hair small, double. Anal gills longer than the segment, slender, pointed.

Southern United States, Antilles, Mexico, Central America, Panama, Venezuela, Surinam, and probably all the south Caribbean coast.

The larvæ occur in temporary rain-pools in company with the *Aëdes* larvæ that frequent such locations. The manner of egg-laying has not been observed. Adults have not been observed to bite.

CULEX (MOCHLOSTYRAX) UNICORNIS Root

CULEX (MOCHLOSTYRAX) UNICORNIS Root, new species (here published).

"*Female*—Proboscis about as long as abdomen, slender, slightly larger at tip, black. Occiput with broad, flat white scales and slender erect forked black scales. Mesonotum dark red-brown. Pleuræ dark brown. Abdomen black with green and bronzy reflections, large basolateral white spots on all segments, becoming more prominent posteriorly. Legs black with bronzy reflections, femora whitish below. Wings dark brown-scaled, outstanding scales narrow obovate to ligulate.

"*Male*—Coloration as in female, except that abdominal segments 4 to 6 usually have narrow basal white bands dorsally. Palpi longer than proboscis, last two joints with many long black hairs. Hypopygium: Outer division of lobe of side-piece slender, with a short outer arm bearing about three slender, curved, pointed filaments and a long, slender, inner arm which bears a long, stout filament with curved and pointed tip and a short, stout pointed filament at its apex, a slender middle filament on the outer side at about one-half its length, and a long, narrow, slender-stemmed leaf on the inner side near base of the inner arm. Inner division of the lobe rather stout, with two slightly divergent arms, of which the outer is longer than the inner. Both arms bear long, slender, capitate rods. Internal to the inner division of the lobe and between its arms arises a single broad, club-shaped filament like those of *C. innovator* Evans. Clasper with a slender, curved stem and a roundly expanded tip which is dentate and pilose above near the tip and has a broad, pointed prolongation above toward the stem. Terminal spine short and broad. Tenth sternites comb-like, with about six teeth. Lobes of ninth tergites small, finger-shaped, each with a single long hair internally near the tip. Mesosomal plates with two short, sharp ventral points and one long, slender dorsal point. A fourth long, slender point present dorsally near base of plates.

"*Larva*—Head wider than long. Antennæ stout on basal three-fifths, slender on apical two-fifths, a large tuft at three-fifths length, two long and two shorter setæ at tip. Head-hairs fairly long, single. Hair near base of antenna a tuft of five or six. Lateral comb of eighth segment a curved row of six to eleven slender, curved scales without secondary points. Air-tube about four times as long as wide, tapering slightly toward tip. Eight pairs of ventral tufts in a straight line, basal tuft longest, others decreasing in length regularly toward tip, each of about five hairs. Pecten occupying

basal third of air-tube, of about eight straight slender spines, densely ciliate below. Anal segment longer than wide, completely ringed by the plate. Dorsal hairs very long, outer pair single, inner pair with one long and one short branch. Lateral hair short, two-branched. Ventral brush small and short. Lateral hairs of segments 4 to 6 in twos."—F. M. Root.

Venezuela.

CULEX (MOCHLOSTYRAX) INNOVATOR Evans

CULEX INNOVATOR Evans, Ann. Trop. Med. and Par., xviii, 373, 1924.
Culex (Mochlostyrax) innovator Root, Am. Journ. Hyg., vii, 594, 1927.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding the proboscis by less than the length of the last two joints, black. Occiput with flat whitish scales, a small area of pale, narrow, curved ones behind. Mesonotum brown, with narrow, curved, dark brown scales; pleuræ pale, marked with black above. Abdomen dark brown, with small basal segmental lateral whitish spots. Wing-scales ovate outwardly on second to fourth veins. Hypopygium (Plate LXIX, Fig. 230): Inner division of lobe of side-piece furcate, the inner limb short and appressed to the outer, each with a long filament with hooked or distorted tip; three more such filaments preceding, each with conical base; outer division of the lobe columnar, the appendages separated; a large filament from the middle of the column inwardly, a long hooked filament, a short one and a blade-like (middle) one from the tip, three large filaments with angled tips from the outer base. Clasper constricted beyond the middle, the tip heavily foot-shaped, serrate on the outer margin, with eye-seta, terminal horn, and appendiculate spine. Tenth sternites with narrow, thickened margin, the tip with about six flat, blunt teeth. Mesosomal plate with three points, the outer and terminal one both radiate and neither long.

Larva—Dr. Root describes and figures larvæ which were not positively associated by breeding.

Brazil (Amazonas, Sant' Anna, Porto das Caixas).

Section CHŒROPORPA Dyar

CULEX (MOCHLOSTYRAX) EGCYMON Dyar

CULEX (CHŒROPORPA) EGCYMON Dyar, Ins. Ins. Mens., xi, 67, 1923.
Culex (Mochlostyrax) egcymon Dyar, Ins. Ins. Mens., xiii, 170, 1925.

Female—Proboscis moderate, swollen at tip, dark brown. Occiput with flat black scales that take a white reflection. Mesonotum blackish, with bronzy brown scales; pleuræ blackish, tinged with green, coxæ not very pale. Abdomen black, small lateral basal segmental white patches; venter with the segments white at base, black at tip, the white part joining with the lateral white to form transverse bands. Legs black with slight bronzy reflection, femora pale below. Wing-scales stiffly linear, outwardly on the second to fourth veins very narrowly ovate, all dark.

Male—Coloration of the female. Palpi slender, exceeding the length of the proboscis by nearly the length of the last two joints, black. Hypopygium (Plate LXIX, Fig. 231): Side-piece elliptical, narrowed and curved at tip; outer portion where the lobe arises thin; inner division columnar, with two short, distorted appendages, the inner arising basad of the outer; outer division triangular, indistinctly cleft, with two large and one small setæ, one seta on the side, and an apical filament expanded out-

wardly, inserted near the clasper. Clasper snout-shaped, the snout as long as the basal part with horn and appendiculate spine, a little crest and seta centrally. Tenth sternites narrow, comb-shaped, the tip with about twenty fine, flat, blunt teeth. Ninth tergites elongated, the tip bent over sharply to fit in at the base of the side-piece, with a tuft of long hairs that reaches the lobe. Mesosomal plate serrate on the margin between the limbs, a spine on the stem beyond the middle.

Larva (Plate LXIX, Fig. 231)—Head transverse, rounded quadrangular. (Antennæ and head-hairs missing.) Lateral comb of the eighth segment of many scales in a large triangular patch, the scales narrow, the basal row a little smaller than the others. Air-tube straight, rather long, six times the basal width; pecten of long spines running to one-third, the last tooth a little distantly spaced; four paired tufts posteriorly beyond the pecten, progressively shorter outwardly, although all are short and the difference is slight. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; the plate is finely spined behind. Dorsal tuft a long hair and a long and a short hair on each side. Anal gills a little longer than the segment, slender, pointed. Skin pale, spicular-pilose. Lateral abdominal hairs in threes on segments 3 to 5.

Panama.

Larva in a stream full of vegetation and containing fish (Busck) and in a small cove cut off from Gatun Lake by the railroad, full of leaves and choked with *Pistia* (Dyar and Shannon).

CULEX (MOCHLOSTYRAX) TÆNIOPUS Dyar and Knab

CULEX TÆNIOPUS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 100, 1907.
MELANOCONION ANNULIPES Theobald, Mon. Culic., iv, 512, 1907.
Culex tæniopus and *annulipes* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 248 and 258, 1915.
Culex (Chæroporpa) tæniopus Dyar, Ins. Ins. Mens., viii, 54, 1920.
Culex (Chæroporpa) tæniopus Dyar (in part), Ins. Ins. Mens., xi, 70, 1923.
CULEX (CHŒROPORPA) CRYBDA Dyar, Ins. Ins. Mens., xii, 184, 1924.
Culex (Chæroporpa) tæniopus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 296, 1925.
Culex (Chæroporpa) tæniopus Dyar, Ins. Ins. Mens., xiii, 22. 1925.
Culex (Mochlostyrax) tæniopus Dyar, Ins. Ins. Mens., xiii, 170, 1925.
Culex (Chæroporpa) tæniopus Dyar, Ins. Ins. Mens., xiii, 214, 1925.

Female—Proboscis moderate, swollen outwardly, black, the labellæ pale. Occiput broadly with narrow, curved black and white scales, some white and black flat scales on the sides below. Mesonotum blackish with bronzy brown scales; pleuræ dark or greenish, black anteriorly. Abdomen black with bluish reflection, sides with basal segmental white spots; venter with the segments white basally, black apically, with the lateral spots forming distinct transverse bands, the segments projecting ventrally posteriorly. Legs black or dark brown, femora pale below; tips of femora and bands involving both ends of the joints white, the tarsal rings on the hind legs only, the last joint all white, or legs without white (form *crybda*). Wing-scales broadly ovate, even the basal outstanding ones somewhat ovate, all dark.

Male—Coloration of the female. The palpi exceed the proboscis by nearly the length of the last two joints, the long joint with a whitish tip, or

palpi exceeding the proboscis by only the length of the last joint, the proportion being variable. Hypopygium (Plate LXX, Fig. 232): Side-piece convex outwardly, narrowed at tip; inner division of the lobe of side-piece a long, stout column with a seta at outer fourth bearing two long, crooked, hooked-tipped filaments inserted parallel; outer division closely adjacent, evenly forked, bearing a long filament with hooked tip and a short filament on the inner limb, a group of about four filaments on the outer. Clasper slender, curved, the apical third very narrowly snout-shaped, minutely crested, with terminal horn and appendiculate flattened spine. Tenth sternites narrow, the tip flatly expanded and bearing about six large, flattened, blunt teeth. Ninth tergites small, spherical, joined by a bar, bearing a few weak setæ; basal plates double, one pair large, triangular, infuscated, the other narrow, elliptical and transparent, both jointed at the same place to the short, thick parameres; mesosomal plate a long, narrow horn with a long, sharp point at right angles near mid-stem.

Larva—Unknown.

Panama, Colombia, Venezuela, Jamaica.

The white rings on the hind tarsi, so unusual and conspicuous in a species of this group, are without specific value and may be entirely absent (form *crybda*). A specimen was bred from a rock-pool, but I have no recent data. The species is rare. I formerly fancied that this species extended to Brazil and placed *chrysothorax* Peryassú in the synonymy; but on account of the comparatively narrow wing-scales described for that form, I have decided it to be more probably a relative of *chrysonotum*, in which white rings on the tarsi have been parallelly developed, and have accordingly placed it in that vicinity.

The names *tæniopus*, *annulipes*, and *crybda* may represent distinct species. In case *tæniopus* is *mychonde* (which see), *crybda* becomes the name of the Colombia–Venezuela form. *Annulipes* from Jamaica is not improbably different. Males are lacking of *tæniopus* and *annulipes*.

CULEX (MOCHLOSTYRAX) OPISTHOPUS Komp

CULEX (CHŒROPORPA) OPISTHOPUS Komp, Ins. Ins. Mens., xiv, 44, 1926.

Female—Proboscis moderate, swollen outwardly, black, the labellæ pale, Occiput broadly with narrow curved white and black scales, some black and white ones on the sides below. Mesonotum blackish, with dark brown scales; pleuræ nearly black. Abdomen black, the segments with faint, indistinct basal segmental bands, the sides with white spots; venter whitish at the bases of the segments, black at their apices, forming rather narrow transverse white bands. Legs black, femora pale below; hind tarsi with white rings at the bases and apices of the segments, rather narrow, but the last joint is all white. Wing-scales rather broadly elliptical, though some of the basal ones in the cell are linear, all dark.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, the tip of the long joint whitish. Hypopygium (Plate LXX, Fig. 233): Side-piece elliptical, convex outwardly; inner division of the lobe a short column, almost sessile, a seta at base, bearing two long, crooked, hooked-tipped filaments equally inserted; outer division columnar, undivided, four filaments in all at summit. Clasper slender, curved, narrowly snout-shaped, obscurely crested, with terminal horn and flattened appendiculate spine. Ninth tergites a pair of long infuscated horns connected by a bar, each nearly four times as long as wide

and with a separate oval tip, bearing a number of tubercles on the outer side with very fine setæ. Tenth sternites narrow, with expanded tip and about six flat, blunt teeth. Mesosomal plate slender, ligulate, pointed.

Larva—Unknown.

Honduras (Punto Castilla).

A form without white on the tarsi probably occurs, but without males its correct association here would be impossible. I am indebted to Mr. W. H. W. Komp for the material.

CULEX (MOCHLOSTYRAX) MYCHONDE Komp

CULEX (MOCHLOSTYRAX) MYCHONDE Komp, new species (here published).

"*Female*—Unknown.

"*Male*—Tarsi with conspicuous white rings involving both ends of the joints. Hypopygium: Side-piece rather thickly elliptical, tapered to tip; lobe divided, the inner division short and thickly columnar, undivided, with two long thick filaments from its summit, the inner curved, wavy and irregularly expanded, the outer less irregular, each with small oblique point at tip; outer division thickly columnar, longer than the inner, bearing four flattened filaments, of different thickness and somewhat irregularly inserted. Clasper moderate, very slenderly snout-shaped, with a groove and two small eye-setæ, a horn at tip and thick appendiculate spine. Tenth sternites narrowly comb-shaped, with about ten close blunt teeth. Ninth tergites two short, bare, infuscated columns, wrinkled at tip, nearly hairless, arising from triangular bases which are shortly, sparsely setose. Mesosomal plate broad, even, curved like half of a cylinder, the top collar-like and with a point at each angle; from the inner margin a long slender dark point extends straight outward, exceeding the plate by half its length."—W. H. W. Komp.

Larva—Unknown.

Panama (Almirante, Republic of Panama, February 1, 1928, one captured male. W. H. W. Komp.).

This is possibly the real *tæniopus*, which was described from Panama from a female; but several species may be confused under the name *tæniopus*, as to which further research will show.

CULEX (MOCHLOSTYRAX) AUTOMARTUS Root

CULEX (CHŒROPORPA) AUTOMARTUS Root, Am. Journ. Hyg., vii, 591, 1927.

Female—Unknown.

Male—Proboscis moderate, swollen outwardly, black. Palpi not longer than the proboscis, though the last two joints are long and slender. Occiput with narrow, curved, whitish scales on the vertex, the sides with some flat white ones. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ pale greenish with brown central spot. Abdomen black with bronzy luster, no markings visible (apical portion removed for mounting). Legs black with bronzy reflection, the femora whitish below. Wing-scales ovate, narrowly so even outwardly, long there and with slightly club-shaped tips. Hypopygium (Plate LXX, Fig. 234): Side-piece elliptical, convex without; inner division of the lobe columnar, two filaments arising from its apex, the inner a little basad of the outer, each with T-shaped tip; outer division remote, shortly columnar with continuing inner arm bearing long hooked filament and a short one; middle filament approximate to the outer group of three sinuate ones. Clasper

narrowly snout-shaped, the snout scarcely wider than the stem, but ridged on the side and with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with four long, somewhat clawed teeth. Ninth tergites small, elliptical, remote, connected by a band, each with a number of fine setæ from inconspicuous tubercular bases. Mesosomal plate simple, with single outcurved horn-like tip.

Larva—Unknown.

Brazil (Rio de Janeiro).

Described from Dr. Root's unique type, bred from a pupa collected in a bromeliad.

CULEX (MOCHLOSTYRAX) PSATHARUS Dyar

CULEX (CHŒROPORPA) PSATHARUS Dyar, Ins. Ins. Mens., viii, 173, 1920.
Culex (Mochlostyrax) psatharus Dyar, Ins. Ins. Mens., xiii, 171, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales. Mesonotum very dark brown with blackish scales, the pleuræ dark brown. Abdomen black, unmarked or with slight pale lateral spots and ventral basal segmental bands. Legs black, the femora brown below. Wing-scales linear, those on second to fourth veins outwardly ligulate, blunt.

Male—Coloration of the female. Palpi exceeding the proboscis by a little more than the length of the last joint, black. Hypopygium (Plate LXX, Fig. 235): Side-piece elliptical, narrowed at tip, convex outwardly; inner division of the lobe stoutly columnar, wrinkled and obliquely transversely ridged, bearing two short, distorted, hooked-tipped filaments, equally inserted; outer division divided into three arms, the inner longest, bearing a long and a short filament, middle one bearing the middle filament, outer bearing two filaments, bent before tip. Clasper stout, constricted near middle, the narrow snout longer than the basal part, minutely crested, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with some fifteen fine teeth. Ninth tergites elliptical, approximate, with many fine setæ. Mesosomal plate small, slender, roundedly forked.

Larva—Unknown.

Panama (Atlantic coast).

I have the species from Colon, France Field, and Margarita. Adults were bred from brackish-water pools in the jungle which contained also *Anopheles tarsimaculatus* Goeldi, but specimens of the larva were not preserved. This very small mosquito appears entirely black.

CULEX (MOCHLOSTYRAX) EPANASTASIS Dyar

CULEX (CHŒROPORPA) EPANASTASIS Dyar, Ins. Ins. Mens., x, 191, 1922.
Culex (Mochlostyrax) epanastasis Dyar, Ins. Ins. Mens., xiii, 172, 1925.

Female—Unknown.

Male—Proboscis moderate, swollen at tip. Palpi as long as the proboscis. Occiput broadly with narrow golden brown or whitish scales on the vertex, flat black and white ones on the sides below. Thorax and abdomen very dark, the latter without marks. Legs black, femora paler below, their tips white. Wing-scales rather broadly ovate, all dark. Hypopygium (Plate LXX, Fig. 236): Side-piece conical, narrowed terminally, convex without; inner division of the lobe stout, columnar, with a seta at mid-stem, bearing two distorted, hooked-tipped filaments, equally inserted; outer division short, evenly furcate, inner limb with long fila-

ment at tip, slender one at middle and middle filament at base, outer limb with two filaments. Clasper slender, a little enlarged at base, snout scarcely widened, but with eye-like seta, terminal horn, and wide appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten flat blunt teeth at tip. Ninth tergites very small, transversely elliptical, each with about six long setæ. Mesosomal plate narrow, curved, pointed, with a retrose point subapically.

Larva—Unknown.

Panama (Toro Point).

The single male from larvæ found in a container is the only specimen before me.

CULEX (MOCHLOSTYRAX) INADMIRABILIS Dyar

Culex (Choeroporpa) indecorabilis Dyar (not Theobald), Ins. Ins. Mens., ix, 156, 1921.
CULEX (MOCHLOSTYRAX) INADMIRABILIS Dyar, new name (here published).

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection. Mesonotum very dark brown, with dark brown scales. Abdomen missing in the specimen. Legs black, femora only slightly pale at tip. Wing-scales broadly ovate, even the basal ones ovate. Hypopygium (Plate LXX, Fig. 237): Side-piece convex outwardly, narrowed at tip; inner division of the lobe columnar with a seta at mid-stem, bearing two long, slender, hooked-tipped filaments evenly inserted; outer division furcate, the inner limb bearing a long and a short filament, the outer one a group of four filaments, of which the normal middle filament is one. Clasper broken, constricted near middle and probably narrowly snout-shaped. Tenth sternites narrow, comb-shaped, with about ten flat blunt teeth. Ninth tergites elliptical, moderate, setose. Mesosomal plate roundedly furcate, limbs short, inner one pointed, a large curved third point on the stem at about its outer third; basal hooks recurved, large; basal plates large, emarginate.

Brazil (São Paulo).

Type—♂, No. 40776, U. S. N. M.; São Paulo, Brazil (A. Lutz).

This specimen was received from Dr. Lutz many years ago and identified by him as *indecorabilis* Theobald. Mr. Coquillett questioned the identification, but I accepted it in 1921. However, *indecorabilis* was described from Pará, while this is from São Paulo, but all these small *Chœroporpa* look exactly alike. It appears to me now that the identification of specimens from São Paulo is not a proper restriction of a species described from Pará, the localities being too remote, and these species being so numerous and similar. It is therefore given a new name and *indecorabilis* transferred to the list of unrecognized species.

CULEX (MOCHLOSTYRAX) CLARKI Evans

CULEX (CHŒROPORPA) CLARKI Evans, Ann. Trop. Med. and Par., xviii, 365, 1924.
Culex (Chœroporpa) clarkei Root, Am. Journ. Hyg., vii, 586, 1927.

Female—Unknown.

Male—Proboscis blackish brown. Occiput with flat black scales, whitish or iridescent in certain lights. Mesonotum dark, with bronzy brown scales; pleuræ with two rounded patches of white scales. Abdomen black with small partial lateral basal segmental spots; ventral segments whitish at base. Legs blackish. Wing-scales broadly ovate outwardly. Hypopy-

gium (Plate LXXI, Fig. 238): Inner division of lobe of side-piece columnar, with two thick, short, slightly distorted filaments, the inner inserted considerably basad of the outer; outer division triangularly columnar with a broad filament from near base, no arms, the long and short filaments at tip, a truncate filament next, a large leaf and three truncate filaments still more basally and outwardly. Clasper attenuated beyond the middle, the snout-shaped tip comprising one-third, minutely crested, with an eye-seta, terminal horn, and appendiculate spine. Ninth tergites rather small, triangularly elliptical, with about a dozen short setæ, the margin clear. Mesosomal plate bifid, with a third point small subapical.

Larva—Unknown.

Brazil (River Amazon, Porto das Caixas, Itaperuna).

CULEX (MOCHLOSTYRAX) THOMASI Evans

CULEX (CHŒROPORPA) THOMASI Evans, Ann. Trop. Med. and Par., xviii, 372, 1924.

Female—Unknown.

Male—Proboscis rather light brown. Palpi exceeding proboscis by the length of the last segment and half the penultimate, brown. Occiput with flat whitish scales with yellow reflections, except a median triangular area of narrow curved whitish scales. Mesonotum with ochraceous brown integument and narrow golden scales; pleuræ purplish brown with patches of white scales. Abdomen dark brown with well defined whitish basal segmental bands. Legs brown with coppery reflections. Wing-scales broadly ovate outwardly. Hypopygium: Inner division of the lobe of side-piece columnar, bearing two stout T-shaped filaments, the inner inserted at the middle of the column; outer division short, quadrate, with inner and outer arms, inner stout, curved, bearing the long and short filaments; middle filament with a large elliptical leaf from a large insertion beside it, outer limb short, with three spoon-shaped long filaments. Clasper with the outer third forming the snout-shaped tip, with eye-seta, terminal horn, and appendiculate spine. Tenth sternites comb-shaped, with about ten flat blunt teeth. Mesosomal plate bifid, with small subapical third point.

Larva—Unknown.

Brazil (Manáos).

This species is not before me.

CULEX (MOCHLOSTYRAX) BEQUAERTI Dyar and Shannon

CULEX (CHŒROPORPA) BEQUAERTI Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 40, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales, a small patch of white ones on the side below. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ and coxæ luteous brown. Abdomen black, the segments with small white basal lateral spots; venter with the segments whitish at base, black apically, posterior segments projecting ventrally. Legs black with bronzy reflection, femora pale beneath. Wing-scales rather narrowly ovate, the basal ones linear.

Male—Coloration of the female. Palpi exceeding the proboscis by the last joint and half of the preceding. Hypopygium (Plate LXXI, Fig. 239): Side-piece elliptical, convex outwardly; inner division of the lobe columnar, long, with two long distorted-tipped filaments equally inserted; outer division short, narrow, bearing on the outer aspect three blade-like

filaments, the outer the longest and a little bent at tip, perhaps also a fourth apical one, broken in the mount. Clasper attenuated in the middle, the outer third narrowly snout-shaped, with small terminal horn and appendiculate spine. Tenth sternites narrowly comb-shaped with seven flat blunt teeth. Ninth tergites two small hairy cones, distantly connected by a broad band, constricted and chitinized centrally. Mesosomal plate neatly cup-shaped furcate, with a large curved third point about mid-stem.

Larva—Unknown.

Brazil (Rio Branco, Amazonas).

Dr. J. Bequaert obtained only a single pair of this species.

CULEX (MOCHLOSTYRAX) ANIPS Dyar

Culex anips Dyar, Ins. Ins. Mens., iv, 48, 1916.
Culex (Melanoconion) anips Dyar and Knab, Ins. Ins. Mens., v, 180, 1917.
Culex (Chœroporpa) anips Dyar, Ins. Ins. Mens., viii, 54, 1920.
Culex (Chœroporpa) anips Dyar, Ins. Ins. Mens., ix, 39, 1921.
Culex (Chœroporpa) anips Dyar, Proc. U. S. Nat. Mus., lxii, 14, 1922.
Culex (Chœroporpa) anips Freeborn, Mosq. of Calif., 424, 1926.

Female—Proboscis rather long, swollen outwardly, black with bronzy reflection. Occiput with flat black scales, erect bronzy ones behind, with whitish luster at the sides. Mesonotum with bronzy brown scales, two indistinct darker lines; pleuræ green. Abdomen black with slight bronzy reflection, the sides with small basal segmental whitish spots; venter greenish gray, the segments with faint blackish apices posteriorly. Legs black, femora white at base and below, tibiæ with faint whitish tips. Wing-scales stiffly linear, the outermost not more than broadly linear, black.

Male—Coloration of the female. Palpi very slender, exceeding the proboscis by more than the length of the last joint. Hypopygium (Plate LXXI, Fig. 240): Side-piece elliptical, convex without; inner and outer divisions appressed, both elongate columnar, inner furcate, the cleft not reaching the base, but the inner crooked filament arising much basad of the outer; outer division swollen beyond middle, narrowed at tip, the long and short filaments arising from tip, two wide filaments and a seta sparsely spaced on the outer aspect. Clasper thick, constricted mesially, the snout-like tip abruptly narrowed, the crest of pile arising sharply in an angled tuft with a little crest before it; a curled horn at tip and appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten fine, flat, blunt teeth. Ninth tergites minute, triangular, with many hairs. Mesosomal plate simple, widely concavely furcate.

Larva—Unknown.

Southern California.

The larvæ occur in large permanent pools containing cat-tails and *Lemma*, in April, but the species is rare and has been only once encountered.

CULEX (MOCHLOSTYRAX) ERRATICUS Dyar and Knab

Mochlostyrax erraticus Dyar and Knab, Journ. N. Y. Ent. Soc., xiii, 26, 1905.
Culex abominator Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 257, 1909.
Culex abominator and *erraticus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 378 and 382, 1915.
Culex (Melanoconion) erraticus Dyar and Knab, Ins. Ins. Mens., v, 179, 1917.
Culex (Chœroporpa) erraticus Dyar, Ins. Ins. Mens., xiii, 55, 1920.
Culex (Chœroporpa) erraticus Dyar, Ins. Ins. Mens., ix, 37, 1921.
Culex (Chœroporpa) erraticus Dyar, Proc. U. S. Nat. Mus., lxii, 12, 1922.

Female—Proboscis moderate, slightly enlarged at tip, dark brown. Occiput with a triangular area of narrow, curved, golden scales on vertex, the sides with flat black scales, nearly meeting on the eye-margin; some flat white ones below. Mesonotal integument brown, with pale golden narrow scales, bronzy or bright brassy, sometimes rather solid anteriorly except for two brown spots, mostly brown-scaled behind with narrow brassy lines; pleuræ and coxæ dark brown. Abdomen black, with basal segmental white bands, median dots or none, the white lateral spots persisting; venter dull white, the posterior segments slightly tipped with blackish. Legs dark brown with bronzy luster, femora pale below and with white tips; tibiæ also white-tipped in certain lights. Wing-scales narrow, the outermost not more than narrowly ligulate, black.

Male—Coloration of the female. Hypopygium (Plate LXXI, Fig. 241): Side-piece much swollen, subglobular; inner division of the lobe long columnar, the inner limb reduced, shortly divaricate from the middle of the arm, its appended filament setaform, the one at summit short, thick, with long T-shaped tip; outer division stoutly columnar, with a strongly inserted filament with long reflexed T-shaped tip, carrying two filaments to its base, a stout and a slender filament in addition. Clasper stout, the snout occupying more than the outer half, sharply enlarged after the constriction; a long outer crest, before which is a stout horn; terminal horn long, the spine hooked, not appendiculate. Tenth sternites very small, crumpled, the dentition indistinct. Ninth tergites small, shortly stemmed, bearing many setæ. Mesosomal plate simple, small, concavely furcate, the inner limb somewhat horn-like.

Larva (Plate LXXI, Fig. 241)—Head transverse, rounded quadrate; antennæ large, longer than head, a large tuft at outer third, the part beyond more slender, terminal spines long. Lateral comb of the eighth segment of about fifteen spiny scales in an irregular double row. Air-tube straight and slightly tapered, about six times as long as wide, pecten reaching one-third; five tufts beyond, decreasing regularly in size, the terminal one not half as long as the basal one; two small tufts on lateral aspect. Body densely hairy. Anal segment longer than wide, ringed by the plate, which is pilose; ventral brush posterior; dorsal tuft a long hair, a long and a short hair on each side; lateral tuft single, small. Anal gills very small, not more than half as long as the width of the segment.

Gulf States and Mississippi Valley to Illinois.

The larvæ occur in ground-pools in river bottoms. Mr. J. K. Thibault, Jr., states that the adults are abundant in "cypress brakes" and that the larvæ occur in hollow logs and stumps. The bite is said to be severe.

CULEX (MOCHLOSTYRAX) PECCATOR Dyar and Knab

CULEX PECCATOR Dyar and Knab, Smiths. Misc. Colls., Quart, Iss., lii, 256, 1909.
CULEX INCRIMINATOR Dyar and Knab, Smiths. Colls., Quart. Iss., lii, 257, 1909.
Culex peccator and *incriminator* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., 318 and 409, 1915.
Culex (Melanoconion) peccator Dyar and Knab, Ins. Ins. Mens., v, 179, 1917.
Culex pecator Dyar and Barret, Ins. Ins. Mens., vi, 119, 1918.
Culex (Chœroporpa) peccator Dyar, Ins. Ins. Mens., viii, 56, 1920.
Culex (Chœroporpa) peccator Dyar, Ins. Ins. Mens., ix, 38, 1921.
Culex (Chœroporpa) peccator Dyar, Proc. U. S. Nat. Mus., lxii, 12, 1922.

Female—Proboscis moderate, swollen at tip, black. Occiput with a narrow triangle of narrow, curved, brown scales in the middle, the flat black

ones meeting in front; a few white ones low on the side. Mesonotum black, with narrow, curved, dark brown or golden brown scales; pleuræ and coxæ dark brown. Abdomen black, the sides with basal segmental small white spots; venter whitish, the segments broadly shaded with blackish apically. Legs black with bronzy reflection, the femora brown beneath. Wing-scales narrow, those outwardly on second to fourth veins narrowly ligulate.

Male—Coloration of the female. Hypopygium (Plate LXXI, Fig. 242): Side-piece inflated, subcircular; inner division of the lobe columnar, the inner limb slight, its filament slender and setaform, arising at basal third, main filament moderate with T-shaped tip; outer division appressed to the inner, columnar, similar, the summit rather truncate and bearing a large circular leaf with two supporting filaments, a large and a small filament besides and a seta on the stem. Clasper thick, short, constricted centrally, the snout-shaped tip thick, crested, the anterior portion separated as a small tuft; terminal horn large, the spine slender and slight, curved. Tenth sternites slended, narrowly comb-shaped, with many fine, flat, blunt teeth. Ninth tergites triangular, fringed on the outer edge only with setæ. Mesosomal plate small, simple, concavely furcate, the inner limb pointed.

Larva—Head transverse, rounded quadrangular; antennæ large, longer than the head, a tuft at outer third, the part beyond more slender; terminal spines long. Lateral comb of the eighth segment of about fourteen narrow pointed scales in an irregularly double row. Air-tube straight, slightly tapered, six times as long as wide, pecten reaching one-third; five pairs of tufts, multiple, diminishing in length somewhat outwardly; tube slightly flared at tip. Anal segment longer than wide, pilose, ringed by the plate. Anal gills moderate, about as long as the segment.

Southern States: North Carolina, Georgia, Tennessee, Mississippi, Louisiana, Arkansas.

The larvæ occur in small pools on marshy ground or edges of lakes, associated with those of *Culex apicalis*.

CULEX (MOCHLOSTYRAX) HOLONEUS Dyar

CULEX (CHŒROPORPA) HOLONEUS Dyar, Ins. Ins. Mens., ix, 35, 1921.
Culex (Chœroporpa) holoneus Dyar, Ins. Ins. Mens., ix, 114, Pl. 11, fig. 4, 1921.
CULEX (CHŒROPORPA) MERONEUS Dyar, Ins. Ins. Mens., xiii, 22, 1925.
Culex (Mochlostyrax) holoneus Dyar, Ins. Ins. Mens., xiii, 172, 1925.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Occiput with flat black scales, a triangle of erect yellowish ones behind. Mesonotum dark with bronzy brown, narrow, curved scales; pleuræ brown, coxæ pale. Abdomen black with basal segmental narrow white bands. Wing-scales rather broadly ovate. Palpi exceeding the proboscis by the length of the last two joints. Hypopygium (Plate LXXII, Fig. 243): Side-piece elliptical, strongly convex without; inner division of the lobe furcate, the arms divaricate, inner a little shorter than the outer, their common stem longer than either arm, each with a long filament with hooked tip; outer division with short inner arm bearing long and short filaments, middle filament large, outer group of three, a small stemmed leaf at mid-stem. Clasper narrowly snout-shaped, constricted beyond base, the tip finely crested, grooved, with eye-seta, with small terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight fine teeth. Ninth tergites

large, contiguous at base, obliquely elliptical, with many fine setæ. Mesosomal plate a slender undivided rod.

Larva—Unknown.

Costa Rica and Colombia.

Probably uniformly distributed, and not taken in Panama simply on account of its rareness. The larvæ are found in ground-pools.

CULEX (MOCHLOSTYRAX) YBARMIS Dyar

CULEX (CHŒROPORPA) YBARMIS Dyar, Ins. Ins. Mens., viii, 57, 1920.

Female—Unknown.

Male—Proboscis moderate, slightly swollen at tip, black at tip, brown basally. Palpi exceeding it by the length of the last two joints. Occiput with a large area of narrow curved scales behind, largely pale, a band of flat black ones in front, which take a white reflection. Mesonotum blackish, with narrow, curved, bright bronzy brown scales; pleuræ rather dark brown. Abdomen black, with lateral segmental white spots; venter with the segments whitish at base and black-banded apically. Legs black, the femora brown below. Wing-scales linear, outwardly on the forks of second and fourth veins narrowly ovate, all dark. Hypopygium (Plate LXXII, Fig. 245): Side-piece elliptical, convex without; inner division of the lobe columnar, not long, the inner long crooked-tipped filament inserted somewhat basad of the outer; a slight pilosity between the divisions; outer division slenderly columnar, a long filament arising from near the base within, a slender spatulate filament before tip, a terminal expanded filament (ordinary middle filament), and three somewhat spoon-shaped filaments on the outer angle (ordinary outer filaments). Clasper rather shortly and thickly snout-shaped, with terminal horn and appendiculate spine. Tenth sternites slender, comb-shaped, with about ten flat, blunt teeth at tip. Ninth tergites elliptical, moderate, with many short setæ from tubercular bases. Mesosomal plate rather widely but shortly cup-shaped furcate.

Larva (Plate LXXII, Fig. 245)—Head transverse, rounded quadrate, the sides bulging; antennæ large, a large tuft at outer third, the part beyond slender. Head-hairs single, upper small, lower large. Lateral comb of the eighth segment of many large spines in a triangular patch. Air-tube long, slightly tapered, six times as long as wide; pecten of long spines reaching one-third, the last one widely spaced

Surinam.

CULEX (MOCHLOSTYRAX) ALCOCCI Bonne-Wepster and Bonne

CULEX (CHŒROPORPA) ALCOCCI Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 171, 1920.
Culex (Chœroporpa) alcocci Dyar, Ins. Ins. Mens., viii, 58, 1920.
Culex (Chœroporpa) alcocci Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam, (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 290, 1925.

Female—Proboscis moderate, expanded at tip slightly, black. Occiput with flat black scales. Mesonotum pale or greenish in the integument, with narrow curved bronzy brown scales; pleuræ and coxæ greenish. Abdomen black; venter grayish white. Legs black with bronzy reflection, the femora pale beneath. Wing-scales narrowly ovate, broader outwardly on the forks of second to fourth veins.

Male—Coloration of the female. The palpi exceed the proboscis by nearly the length of the last two joints. Hypopygium (Plate LXXII, Fig.

246): Side-piece conical, convex outwardly; inner division of the lobe furcate, the arms apart, inner very short, each with large crooked-tipped filament; outer division appressed to the inner, columnar, a large filament from its base outwardly; at tip a large filament, four shorter filaments and a large irregular leaf. Clasper thick, scarcely contracted, the tip narrowed, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped with about ten fine teeth. Ninth tergites elliptical, with many small setæ from tubercular bases. Mesosomal plate rather widely but shortly cup-shaped furcate.

Larva (Plate LXXII, Fig. 246)—Head transverse, bulging on the sides; antennæ large, a large tuft at outer third, the part beyond more slender, basal part spinulated. Head-hairs in large tufts. Lateral comb of the eighth segment of many spines in a rather small patch. Air-tube straight, about five times as long as wide, slightly tapered; heavy pecten on basal two-fifths; five short tufts beyond, about equal in length. Anal segment ringed by the plate, the brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills twice as long as the segment, tapered.

Surinam.

The larvæ occur in temporary pools in forest, often with *Aëdes* larvæ.

CULEX (MOCHLOSTYRAX) NICCERIENSIS Bonne-Wepster and Bonne

CULEX (CHŒROPORPA) NICCERIENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 174, 1920.

Culex (Chœroporpa) nicceriensis Dyar, Ins. Ins. Mens., viii, 59, 1920.

Culex (Chœroporpa) nicceriensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Institute of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 288, 1925.

Female—Proboscis moderate, swollen apically, black. Occiput with an area of narrow, curved, coppery scales on the vertex, flat black and white ones on the sides. Mesonotum black, with narrow, curved, coppery brown scales; pleuræ and coxæ greenish brown. Abdomen black with coppery reflection; venter black. Legs dark brown with coppery luster. Wing-scales rather broadly ovate, especially outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint. Hypopygium (Plate LXXIII, Fig. 249): Side-piece elliptical, convex without; divisions of the lobe appressed, the inner furcate, inner fork short, each with long, crooked-tipped filament; outer division columnar, a narrow filament on the outer side near mid-stem; a long hooked filament, an irregular leaf and three short filaments at tip. Clasper thickly snout-shaped, narrowed at tip, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight fine teeth. Ninth tergites elliptical, with many fine setæ from tubercular bases. Mesosomal plate shallowly furcate, the inner limb pointed, the outer expanded.

Larva (Plate LXXIII, Fig. 249)—Head transverse, bulging at the sides; antennæ large, a tuft at the outer third, the part beyond slender, basal part spined. Head-hairs, upper in three, rather short, lower single, long, anteantennal multiple. Lateral comb of the eighth segment of many small spines in a triangular patch. Air-tube very long and slender, with a rather flared base, seven times as long as basal width, pecten on basal fourth; three small three- or four-haired tufts scattered outwardly. Anal segment longer than

wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and short hair on each side.

Surinam, Venezuela (Ocumare de la Costa).

The larvæ were found in ground-pools. The descriptions were taken from those of the Bonnes (Mosquitoes of Surinam), as Dr. Root's specimens from Venezuela only lately came before me. The larva is of the *Melanoconion* type rather than that of *Chæroporpa,* and if no mistake has been made in the association, clearly indicates its distinctness.

CULEX (MOCHLOSTYRAX) SARAMACCENSIS Bonne-Wepster and Bonne

CULEX (CHŒROPORPA) SARAMACCENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 172, 1920.

Culex (Chœroporpa) saramaccensis Dyar, Ins. Ins. Mens., viii, 79, 1920.

Culex (Chœroporpa) saramaccensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Institute of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 305, 1925.

Female—Proboscis moderate, swollen at tip, black outwardly, brownish toward base. Occiput with a small triangular area of narrow curved scales on the vertex, the rest with flat black scales. Mesonotum dark brown, with narrow, curved, dark bronzy scales; pleuræ dark brown, coxæ pale. Abdomen black, with basal segmental lateral small whitish spots; venter dark (badly preserved). Legs blackish, the femora brown beneath. Wing-scales narrow, the outer ones narrowly ovate.

Male—Coloration of the female. Hypopygium (Plate LXXIV, Fig. 250): Side-piece elliptical, convex without; inner division of the lobe divaricate, the inner arm sessile, outer moderate, each with a long bent-tipped filament; outer division moderate, the inner arm pronounced but in continuation of the shaft, with a long, hooked filament, one middle filament and one outer filament. Clasper slenderly snout-shaped, crested, with terminal horn and appendiculate spine. Tenth sternites slender, comb-shaped, with about ten flat blunt teeth. Ninth tergites very small with a few long hairs. Mesosomal plate shortly furcate, inner limb pointed, outer broadly rounded (from description and figure of the Bonnes).

Larva (Plate LXXIV, Fig. 250)—Head transverse, rounded quadrate; antennæ large, a tuft at outer third, the part beyond slender, basal part spinulated, terminal spines long. Head-hairs in twos or single, anteantennal tuft in five. Lateral comb of the eighth segment of many very large spines in a patch three rows deep. Air-tube six times as long as wide, tapered; pecten on basal two-fifths of tube, exceeding the first hair tuft; five pairs of ventral tufts, decreasing in length outwardly, the basal pair longer than half of the tube. Anal segment longer than wide, spicular pilose, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills longer than the segment. Skin long spicular pilose, but the pile is pale.

Surinam.

CULEX (MOCHLOSTYRAX) TEREBOR Dyar

CULEX (CHŒROPORPA) TEREBOR Dyar, Ins. Ins. Mens., viii, 56, 1920.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black outwardly, brownish toward base. Occiput with a small triangular area of narrow, curved scales on the vertex, the rest with flat black scales. Mesonotum brown with narrow curved bronzy scales; pleuræ brown, coxæ pale. Abdomen black, the segments with basal white bands; venter whitish, the segments

broadly black apically. Legs black, the femora brown below. Wing-scales rather broadly ovate, distinctly so outwardly on second to fourth veins. Palpi exceeding the proboscis. Hypopygium (Plate LXXII, Fig. 244): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, inner limb nearly sessile, outer rather long, each with a long, crooked-tipped filament; outer division moderate, the inner arm distinct but in prolongation of the division, with long and short filaments; two middle filaments and two somewhat irregular outer ones. Clasper rather narrowly snout-shaped, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with rather many fine teeth. Ninth tergites probably small (invisible in the mount). Mesosomal plate shallowly furcate, inner limb short, pointed, outer triangular.

Larva—Unknown.

Surinam.

This greatly resembles *sarramaccensis*, of which I have only females. The color of my male *terebor* is browner, less black than *sarramaccensis* and the wing-scales are decidedly broader; the hypopygium differs from the Bonnes' figure in having many less filaments on the outer division of the lobe and in the broader mesosomal plate, but I do not know that Dr. Bonne drew from a perfect slide. However, the species may be perfectly distinct, though the peculiar character on which I founded *terebor* looks to me now to be non-existent. Perhaps it was an artifact which in the ten years following my first examination has been absorbed.

CULEX (MOCHLOSTYRAX) DISTINGUENDUS Dyar

CULEX (MOCHLOSTYRAX) DISTINGUENDUS Dyar, new species (here published).

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with a large triangle of narrow, curved, bronzy scales in the middle, flat black ones on the sides and margins of eyes nearly to vertex. Mesonotum black, with small, narrow, hair-like, very dark brown scales, rather sparsely distributed; pleuræ blackish, coxæ dark green. Abdomen black, slightly greenish below. Legs black, with strong bronzy reflection, the dark color running up to the green coxæ. Wing-scales narrow, outwardly on second to fourth veins narrowly ovate.

Male—Coloration of the female. Palpi exceeding the proboscis by nearly the length of the last two joints. Hypopygium: Side-piece thickly conical, tapered to a narrow tip; inner division of the lobe broadly divaricate, each limb with a long filament with spatulate T-shaped tip, the outer limb appressed against the outer division; this columnar, a little curved, a long and a short filament on its inner angle only slightly raised, a large, broadly triangular, rounded, excavate-tipped leaf in the position of the middle filament, which is hair-like and approximate to the leaf, four flattened curved filaments on outer aspect. Clasper constricted centrally, narrowly snout-shaped, with horn and subterminal appendiculate spine. Tenth sternites slender, comb-shaped, six-toothed. Ninth tergites elliptico-conical, large, setose. Mesosomal plate broad outwardly, cup-shaped furcate, outer limb rounded, thin, inner pointed and chitinized. At base of this plate a triangular structure has one horn parallel along the stem and another sharp one at right angles.

Larva—Unknown.

Panama (Mojinga Swamp).

Described from two males and two females collected by Dr. D. P. Curry, July 5, 1927. Type No. 40777, U. S. Nat. Mus.

CULEX (MOCHLOSTYRAX) CONSPIRATOR Dyar and Knab

CULEX CONSPIRATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 217, 1906.
Culex conspirator Howard, Dyar, and Knab, Mosq. of No. and Cent. Am. and W. I., iii, 410, 1915.
Culex (Chœroporpa) conspirator Dyar, Ins. Ins. Mens., viii, 58, 1920.
CULEX (CHŒROPORPA) DYSMATHES Dyar and Ludlow, Ins. Ins. Mens., ix, 47, 1921.
CULEX (CHŒROPORPA) PASADÆMON Dyar, Ins. Ins. Mens., ix, 100, 1921.
CULEX (CHŒROPORPA) MERODÆMON Dyar, Ins. Ins. Mens., ix, 100, 1921.
Culex (Chœroporpa) pasadœmon, merodœmon, and *dysmathes* Dyar, Ins. Ins. Mens., ix, 114, Pl. II, figs. 1-3, 1921.
Culex (Chœroporpa) conspirator Dyar, Ins. Ins. Mens., xi, 69, 1923.
Culex (Chœroporpa) conspirator Dyar and Shannon, Ins. Ins. Mens., xii, 47, 1924.
Culex (Chœroporpa) conspirator Dyar, Ins. Ins. Mens., xiii, 22, 1925.
Culex (Chœroporpa) conspirator Dyar, Ins. Ins. Mens., xiii, 28, 1925.
Culex (Mochlostyrax) conspirator Dyar, Ins. Ins. Mens., xiii, 172, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with flat black scales, a few white ones along eye-margin and below. Mesonotum blackish, with dark brown, narrow, curved scales; pleuræ brown, the coxæ more or less greenish. Abdomen black, the sides with basal segmental white spots; venter with the segments white at base, black at tip. Legs black with bronzy reflection, the femora whitish below. Wing-scales linear, becoming ovate outwardly on second to fourth vein.

Male—Coloration of the female. The palpi exceed the proboscis by nearly the length of the last two joints. Hypopygium (Plate LXXIII, Fig. 247): Side-piece elliptical, convex outwardly; the inner division of the side-piece furcate, the limbs subequal and about as long as the basal part, each with a long filament with crooked tip; outer division short, with a long inner arm continuing the division, carrying long and short filaments; a middle filament, group of two outer, and a long, narrow leaf, ribbed at base. Clasper slender, the tip snout-shaped, enlarged, with curved groove, eye-seta, terminal horn, and appendiculate spine. Tenth sternites slender, comb-shaped, with about eight flat, blunt teeth. Ninth tergites elliptical, oblique, with many fine setæ from tubercular bases. Mesosomal plate with one erect point, the other limb slight or squarely notched, between them a curved arc with granular outer edge, situated at outer fourth of stem.

Larva (Plate LXXIII, Fig. 247)—Head transverse, bulging at the sides; antennæ large, a large tuft at outer third, the part beyond slender, basal part spinulated, terminal spines long. Lateral comb of the eighth segment of many spines in a rather small triangular patch. Air-tube about six times as long as wide, slightly tapered, the pecten on basal third; five paired tufts posteriorly, decreasing in length outwardly, the last not half as long as the first. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair, a long and two short ones on each side; lateral tuft small. Anal gills about as long as the segment, pointed.

Mexico, Central America, Panama, Colombia, Ecuador.

The larvæ are found in ground-pools of various character but of permanent nature.

CULEX (MOCHLOSTYRAX) FATUATOR Dyar and Shannon

CULEX (CHŒROPORPA) FATUATOR Dyar and Shannon, Ins. Ins. Mens., xii, 47, 1924.
Culex (Mochlostyrax) fatuator Dyar, Ins. Ins. Mens., xiii, 172, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with flat black scales, a few white ones along eye-margin and below. Meso-

notum blackish, with dark brown, narrow, curved scales; pleuræ brown, the coxæ more or less greenish. Abdomen black, the sides with basal segmental white spots; venter with the segments white at base, black at tip. Legs black with bronzy reflection, the femora whitish below. Wing-scales linear, becoming ovate outwardly on second to fourth veins.

Male—Coloration of the female. The palpi exceed the proboscis by nearly the length of the last two joints. Hypopygium (Plate LXXIII, Fig. 248): Side-piece elliptical, convex outwardly, inner division of the side-piece furcate, the limbs subequal and about as long as the basal part, each with a long filament with crooked tip; outer division short, with a long inner arm continuing the division, carrying long and short filaments; a middle filament, group of two outer, and a long, narrow leaf, ribbed at base. Clasper slender, the tip snout-shaped, enlarged, with curved groove, eye-seta, terminal horn, and appendiculate spine. Tenth sternites slender, comb-shaped, with about eight flat blunt teeth. Ninth tergites elliptical, oblique, with many fine setæ from tubercular bases. Mesosomal plate furcate, the two points sharp and laterally directed, on the back of them a rounded arc.

Larva—Unknown.

Panama.

Perhaps a varietal form of *conspirator*. Further experiments are required to show the relationships of these forms.

CULEX (MOCHLOSTYRAX) INDUCENS Root

CULEX (CHOEROPORPA) INDUCENS Root, new species (here published).

"*Female*—Proboscis shorter than abdomen, slender, swollen at tip, black. Occiput with narrow flat white scales and slender, erect, forked, black scales. Mesonotum dark red-brown. Pleuræ brown. Abdomen black, with green and bronzy reflections. All segments with small baso-lateral white spots which are not visible at all in dorsal view. Legs black with green and bronzy reflections, femora whitish below. Wings dark brown-scaled, outstanding scales narrow obovate to ligulate.

"*Male*—Coloration as in female, except that abdominal segments 5 to 8 often show narrow basal white bands dorsally. Palpi longer than proboscis, last two joints with long black hairs. Hypopygium: Outer division of lobe of side-piece short and stout, with a slender inner arm bearing a long filament with curved and pointed tip and a stout, short, pointed filament. Near base of inner arm arises a slender middle filament. Outer group consists of about three slender, curved, pointed filaments. From about the middle of the stem of this division of the lobe arise a short, broad, triangular ribbed leaf and a long slender seta. Inner division of the lobe rather slender, forked, the outer of the two divergent arms slightly the longer. Both arms bear slender capitate rods. Clasper rather narrowly snout-shaped, dentate, and pilose above near tip, terminal spine slender. Mesosomal plates end in a stout, pointed inner arm and a broad outer arm which has a slender, pointed tip and is slightly serrate dorsally. No third point present. Tenth sternites comb-like, with eight or nine teeth. Lobes of ninth tergties small, oblong, close together, with many hairs."—F. M. Root.

Larva—Unknown.

Venezuela.

CULEX (MOCHLOSTYRAX) ELEVATOR Dyar and Knab

CULEX ELEVATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 217, 1906.
CULEX APATETICUS Howard, Dyar, and Knab (in part), Mosq. No. and Cent. Am. and W. I., iii, 321, 1915.
Culex elevator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 414, 1915.
Culex (Chœroporpa) elevator Dyar, Ins. Ins. Mens., viii, 60, 1920.
Culex (Mochlostyrax) elevator Dyar, Ins. Ins. Mens., xiii, 173, 1925.
CULEX (CHŒROPORPA) DYIUS Root, Am. Journ. Hyg., vii, 587, 1927.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection, some flat white ones on the side. Mesonotum blackish, with narrow, curved, dark bronzy brown scales; pleuræ and coxæ dark greenish. Abdomen black, the sides with basal segmental small whitish spots; venter sordid white, the segments broadly blackish at their apices. Legs black with bronzy luster, the femora whitish below. Wing-scales linear, narrowly ovate on the second to fourth veins outwardly, all dark.

Male—Coloration of the female. Palpi exceeding the proboscis by a little more than the length of the last joint. Hypopygium (Plate LXXIV, Fig. 251; Plate LXXV, Fig. 256): Side-piece elliptical, convex outwardly; inner division of the lobe with the inner arm very short, sessile at the basal third of the rather long outer limb, each with a long crooked-tipped filament; outer division with an inner arm continuing the shaft, bearing a long and a short filament; middle filament large, approximated to the outer group of three bent and somewhat flattened filaments. Clasper with long snout occupying half the stem, with groove, terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about nine flat, blunt teeth. Ninth tergites elliptical, moderate, with many fine hairs from tubercular bases. Mesosomal plate simple, widely furcate, limbs flat and rounded.

Larva (Plate LXXIV, Fig. 251)—Head transverse, bulging on the sides; antennæ large, a large tuft at outer third, the part beyond slender, the basal part spinulated, terminal spines long. Head-hairs single, including the small middle pair, anteantennal tuft multiple. Lateral comb of the eighth segment of many small spines in a triangular patch. Air-tube long and straight, about eight times the basal width, pecten on the basal two-fifths long and open, followed by five paired hair-tufts, decreasing in length outwardly, the last one less than half as long as the first; two small lateral tufts. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills shorter than the segment, pointed.

Costa Rica, Panama, Brazil.

The larvæ are found in ground and rock pools.

CULEX (MOCHLOSTYRAX) DORNARUM Dyar and Shannon

CULEX (CHŒROPORPA) DORNARUM Dyar and Shannon, Ins. Ins. Mens., xii, 46, 1924.
Culex (Mochlostyrax) dornarum Dyar, Ins. Ins. Mens., xiii, 173, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection, some flat white ones on the side. Mesonotum blackish, with narrow, curved, dark bronzy brown scales; pleuræ and coxæ dark greenish. Abdomen black, the sides with basal segmental small whitish spots; venter sordid white, the segments broadly blackish at their apices. Legs black with bronzy luster, the femora whitish below.

Wing-scales linear, narrowly ovate on the second to fourth veins outwardly, all dark.

Male—Coloration of the female. Palpi exceeding the proboscis by a little more than the length of the last joint. Hypopygium (Plate LXXIV, Fig. 252): Side-piece elliptical, convex outwardly; inner division of the lobe with the inner arm very short, sessile at the basal third of the rather long outer limb, each with a long crooked-tipped filament, outer division with an inner arm continuing the shaft, bearing a long and a short filament; middle filament large, approximated to the outer group of three bent and somewhat flattened filaments. Clasper with a long snout occupying half the stem, with groove, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about nine flat, blunt teeth. Ninth tergites elliptical, moderate, with many fine hairs from tubercular bases. Mesosomal plate simple, widely furcate, limbs long and pointed.

Larva—Unknown.

Panama.

It is possible that this is *elevator*, being mounts in which the mesosomal plate shows both arms in side view.

CULEX (MOCHLOSTYRAX) MACARONENSIS Dyar and Núñez Tovar

CULEX (CHŒROPORPA) MACARONENSIS Dyar and Núñez Tovar, Ins. Ins. Mens., xiv, 153, 1927.

Female—Unknown.

Male—Proboscis moderate, slightly swollen at tip, black. Occiput with flat black scales which take a white reflection, flat white ones on the side below. Mesonotum blackish, with narrow, curved, dark bronzy brown scales; pleuræ dark luteous, coxæ not very pale. Legs black with bronzy reflection, the femora whitish below. Wing-scales linear, narrowly ovate outwardly on second to fourth veins. Hypopygium (Plate LXXIV, Fig. 253): Side-piece ovate, convex without; inner division of the lobe furcate, the arms of nearly equal length and equaling the stem before furcation; each with a long crooked T-tipped filament; outer division short, with a long inner arm continuing the shaft, probably bearing a long and a short filament, but broken in the mount; middle filament large and broad, a single outer filament, rather broadly elliptical. Clasper with the stem slender, abruptly snout-shaped, minutely crested, with curved groove, terminal horn, and appendiculate spine. Tenth sternites very slender, comb-shaped, with about eight flat, blunt teeth. Ninth tergites rather broadly elliptical, oblique, with many fine hairs from tubercular bases. Mesosomal plate furcate, the upper limb long, pointed with an arcuate elevation preceding, lower arm short, triangular.

Larva—Unknown.

Venezuela.

CULEX (MOCHLOSTYRAX) PHLOGISTUS Dyar

CULEX (CHŒROPORPA) PHLOGISTUS Dyar, Ins. Ins. Mens., viii, 61, 1920.
CULEX (CHEROPORPA) ŒDIPUS Root, Am. Journ. Hyg., vii, 588, 1927.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding the proboscis by more than the length of the last joint. Occiput with flat black scales with a white luster. Mesonotum blackish, with narrow, curved, dark bronzy brown scales; pleuræ and coxæ dark. Abdomen black with bronzy

luster (outer part removed for mounting). Legs black with bronzy reflection, femora whitish below. Wing-scales narrow, wider and ligulate outwardly on second to fourth veins. Hypopygium (Plate LXXV, Fig. 254): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, inner limb very short, outer much longer and roundedly swollen at tip, each with a long, crooked-tipped, hooked filament; outer division short, a short, thick, inner arm bearing a long filament with hooked tip and parallelly inserted, the usual short filament, which is flame-shaped, three-fourths as long as the long filament; middle filament flame-shaped; three outer slender filaments. Clasper slenderly snout-shaped, crested, with curved groove, eye-seta, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten flat, blunt teeth. Ninth tergites large, elliptical, with many fine setæ from tubercular bases. Mesosomal plate with the inner limb broad, serrated on the margin, outer limb laterally directed, a horn-like third point at about mid-stem.

Larva (Plate LXXV, Fig. 254)—Head transverse, bulging on the sides. Antennæ large, a tuft at outer third, the part beyond it slender, basal part spinulated, terminal spines long; head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of many narrow spines in a triangular patch, the basal spines smaller than the outer ones. Air-tube straight, slender, uniform, about eight times as long as basal width, with a black band in the middle; pecten reaching the basal two-fifths, of thick, closely spaced teeth, followed by five paired tufts, decreasing in length outwardly, the terminal one about half as long as the basal one. Air-tube longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills about as long as the segment, tapered.

Venezuela, Surinam, Brazil.

I have one male type specimen, the mount of which is not clear. The slide of Root's *œdipus*, however, is excellent. This species is not *albinensis*, on account of the different ornamentation of the outer division of the lobe of side-piece; *maroniensis*, however, is not before me, being also described from a single male, while the Bonnes' description and figure of this part seems perfunctory. I shall not be at all surprised if this proves to be *maroniensis*, but a careful comparison of the type must be made before the synonymy is certain. Dr. F. M. Root found the species at Maracay, Venezuela.

CULEX (MOCHLOSTYRAX) MARONIENSIS Bonne-Wepster and Bonne

CULEX (CHŒROPORPA) MARONIENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 175, 1920.

Culex (Chœroporpa) maroniensis Dyar, Ins. Ins. Mens., viii, 80, 1920.

Culex (Chœroporpa) maroniensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 304, 1925,

Female—Unknown.

Male—Proboscis moderate, swollen apically, brown. Occiput with flat scales with whitish reflection. Palpi exceeding the proboscis by the length of the last two joints. Mesonotum dark brown, with narrow curved bronzy brown scales; pleuræ and coxæ brown. Abdomen black, the sides with small basal segmental whitish spots; venter with the segments whitish at base, black banded apically. Legs bronzy brown, paler beneath; tips of femora and tibiæ narrowly pale. Wing-scales ligulate, narrowly ovate out-

wardly on second to fourth veins. Hypopygium (Plate LXXV, Fig. 258): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, inner arm short, each with a long filament; outer division with a large filament accompanied by a setaform one, middle filament and two setaform outer ones. Clasper narrowly snout-shaped, constricted before middle, minutely crested, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped. Ninth tergites large, ovate, with many fine setæ from tubercular bases. Mesosomal plate furcate, the upper limb serrate outwardly, both limbs sharp; a horn on the stem subapically.

Larva—Unknown.

Surinam.

This is not before me unless *phlogistus* preceding be the same. The descriptions are taken from the Bonnes' "Mosquitoes of Surinam."

CULEX (MOCHLOSTYRAX) ALBINENSIS Bonne-Wepster and Bonne

CULEX (CHŒROPORPA) ALBINENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 173, 1920.

CULEX (CHŒROPORPA) GORDONI Evans, Ann. Trop. Med. and Par., xviii, 369, 1924.

Culex (Chœroporpa) albinensis Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 40, 1925.

Culex (Chœroporpa) albinensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 298, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection. Mesonotum blackish with narrow, curved, dark bronzy brown scales; pleuræ and coxæ dark. Abdomen black, the sides with small basal segmental whitish spots; venter with the segments whitish basally, black outwardly. Legs black with bronzy luster, the femora pale below. Wing-scales linear, ligulate outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint. Hypopygium (Plate LXXVI, Fig. 259): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, the inner limb short, but nearly at mid-stem, each with long filament with T-shaped tip; outer division thickly columnar, a tubercle at its base, an inner arm bearing long and short filaments, the long one wide, with a hooked tip, the short one flame-shaped; middle filament as long as the long one (more basally originating), broadly flame-shaped; four close outer filaments, twice bent. Clasper rather slenderly snout-shaped, with groove, terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten flat, blunt teeth. Ninth tergites elliptical, moderate, with many fine setæ from tubercular bases. Mesosomal plate with fan-shaped serrated margin; a sharp point at tip of serration, a blunt point in the middle, a curved horn about mid-stem.

Larva (Plate LXXVI, Fig. 259)—Head transverse, bulging at the sides; antennæ large, a tuft at the outer third, the part beyond slender, basal part spiculate. Anteantennal tuft multiple. Body spicular. Lateral comb of the eighth segment of several large spines in a patch. Air-tube about six times as long as wide, tapered basally; pecten reaching basal third of tube; five pairs of posterior tufts, diminishing slightly in length outwardly. Anal segment longer than wide, spicular.

Surinam, Brazil.

The larvæ were found in ground-pools.

CULEX (MOCHLOSTYRAX) SERRATIMARGO Root

CULEX (MOCHLOSTYRAX) SERRATIMARGE Root, Am. Journ. Hyg., vii, 589, 1927.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding it by more than the length of the last joint. Occiput with flat black scales that take a white reflection, some yellowish narrow ones far back on the nape. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ dark brown with a black line above. (Abdomen missing.) Legs black with bronzy reflection, the femora whitish beneath. Wing-scales linear, moderately ovate outwardly on second to fourth veins. Hypopygium (Plate LXXV, Fig. 255): Side-piece elliptical, convex outwardly; inner division of the lobe divided, the arms separating at a small angle, the inner shorter, each with a long filament with widened, hooked tip; outer division wide, as wide as long, inner angle slightly produced, bearing a long hooked and a short flame-shaped filament; middle filament large and broad, widely separated from the inner angle and the outer group, on an angular projection of its own; outer group from a small arm near outer base of division; a stout filament from just before tip of side-piece. Clasper rather broadly snout-shaped, the snout crested with distinct pile, with groove, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about twelve long, blunt teeth. Ninth tergites elongate, the base spherical, then constricted, the outer part again bulbous, with long, dense, curving terminal hairs. Mesosomal plate serrate on the outer margin inwardly from the apical point; outer limb long; a third long point about mesial on the stem.

Larva—Unknown.

Brazil (Sant' Anna).

Described from Dr. Root's unique type.

CULEX (MOCHLOSTYRAX) PLECTOPORPE Root

CULEX (MOCHLOSTYRAX) PLECTOPORPE Root, Am. Journ. Hyg., vii, 589, 1927.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding it by the length of the last joint and half of the preceding one, black. Occiput with flat black scales that take a white reflection. Mesonotum dark brown, with dark brown, narrow, curved scales with bronzy reflection; pleuræ pale below, a black mark below and towards the front. (Abdomen missing.) Legs black with bronzy reflection, the femora whitish below. Wing-scales linear, ovate outwardly on second to fourth veins. Hypopygium (Plate LXXV, Fig. 257): Side-piece elliptical, convex outwardly; inner division of the lobe very broad, rounded rectangular, the limbs arising from the corners, the outer limb the longer, each with a long filament with widened tip and small point; outer division short, subtriangular, a long hooked filament and a shorter narrower one from its inner tip; middle filament large, flame-shaped, adjacent to the two outer sinuate filaments, below which at outer base of the division a large, expanded, elliptical, smooth leaf arises from a large insertion. Clasper narrowly snout-shaped, crested before, the outer margin thinly roundedly extended, forming a flap; eye-seta, terminal horn, and appendiculate spine present. Tenth sternites narrow, comb-shaped, with about eight large, blunt teeth. Ninth tergites rather large, elliptical, approximate, oblique, with many fine setæ from tubercular bases. Meso-

somal plate with the tip expanded and serrate on the margin, outer limb pointed at right angles, third point horn-like, closely subapical on the stem.

Larva—Unknown.

Brazil (Bangu).

Described from Dr. Root's unique type.

CULEX (MOCHLOSTYRAX) TECMARSIS Dyar

CULEX (CHŒROPORPA) TECMARSIS Dyar, Ins. Ins. Mens., vi, 124, 1918.
Culex (Chœroporpa) tecmarsis Dyar, Ins. Ins. Mens., viii, 62, 1920.
Culex (Mochlostyrax) tecmarsis Dyar, Ins. Ins. Mens., xiii, 173, 1925.
Culex (Chœroporpa) tecmarsis Dyar, Ins. Ins. Mens., xiii, 214, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with flat black scales that take a white reflection; some white ones below. Mesonotum dark brown with dark bronzy, brown, narrow, curved scales; pleuræ brown, the coxæ lighter. Abdomen black, the sides with small basal segmental whitish spots; venter with the segments whitish at base, black at tip. Legs dark brown with bronzy reflection, femora and tibiæ light at tips. Wing-scales ligulate basally, ovate outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by nearly the length of the last two joints. Hypopygium (Plate LXXVI, Fig. 260): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, the inner arm very short, outer rather long, curved and appressed against the outer division, each with a long filament with elliptically enlarged tip; outer division small, pointed outwardly on the inner side and bearing a long and a short filament; middle filament and three outer seta-form filaments distributed along the outer declivity to base, with a rather large oval irregular transparent leaf. Clasper rather short and stout, narrowly snout-shaped, with curved groove, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites rounded and full at base, with many fine setæ from tubercular bases, the outer angle drawn out into a long, finger-shaped process with coarse hairs at the tip. Mesosomal plate cup-shaped furcate, the limbs small, inner horn-like, a third hook-like point at mid-stem.

Larva—Unknown.

Panama and Venezuela.

The larvæ occur in ground-pools. "Cotton-Tree Swamp," France Field, Canal Zone, October 25, 1924 (through Col. D. Baker, surgeon); but larvæ not preserved.

CULEX (MOCHLOSTYRAX) PHLABISTUS Dyar

CULEX (CHŒROPORPA) PHLABISTUS Dyar, Ins. Ins. Mens., viii, 63, 1920.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding the proboscis by the length of the last joint and half the preceding. Occiput with flat black scales that take a white reflection. Mesonotum brown, with narrow, curved, bronzy, brown scales; pleuræ and coxæ luteous. Abdomen black, the sides with rather large basal segmental white spots; venter with the segments pale at base, blackish at tip. Legs bronzy brown, the femora pale beneath. Wing-scales linear basally, rather broadly ovate outwardly. Hypopygium (Plate LXXVI, Fig. 261): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, the inner arm very

short, outer moderate, each with a long filament with spatulate tip; outer division slenderly columnar, a curved outer arm arising before tip, bearing a filament and a small leaf, tip with a long and a short filament, middle filament at the junction of the arm, strongly inserted, long. Clasper widely snout-shaped, crested minutely, with double terminal horn and slender appendiculate spine. Ninth tergites moderate, rounded basally, truncate apically, with many fine hairs from tubercular bases. Mesosomal plate elongate, cup-shaped furcate, third horn-like point basally of the middle.

Larva—Unknown.

Surinam.

Known only by the single male.

CULEX (MOCHLOSTYRAX) COPPENAMENSIS Bonne-Wepster and Bonne

CULEX (CHŒROPORPA) COPPENAMENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 173, 1920.

Culex (Chœroporpa) coppenamensis Dyar, Ins. Ins. Mens., viii, 64, 1920.

Culex (Chœroporpa) coppenamensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 300, 1925.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection. Mesonotum dark, with narrow, curved, bronzy brown scales; pleuræ and coxæ blackish. Abdomen black, the segments with basal white bands; venter with the segments whitish at base, black outwardly. Legs black, femora and tibiæ pale at tips, femora pale below. Wing-scales ligulate, rather broadly ovate outwardly on second to fourth veins. Hypopygium (Plate LXXVI, Fig. 262): Side-piece conical, convex outwardly; inner division of the lobe apart from the outer with small spinules between, furcate, the limbs parallel, the inner shorter, each with a long filament; outer division with a slender outer arm bearing a large leaf; tip of shaft blunt, with a long filament and three setaform ones. Clasper thick and uniform, without definitely constricted snout-shaped tip, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped. Ninth tergites ovate, with many fine hairs from tubercular bases. Mesosomal plate cup-shaped furcate, a third curved spine subapically on the stem.

Larva (Plate LXXVI, Fig. 262)—Head transverse, bulging on the sides; antennæ large, a tuft at outer third, the part beyond slender, basal part spined; head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of many large spines in a patch three rows deep. Air-tube about seven times as long as wide, straight, very slightly tapered, pecten reaching nearly one-third, followed by five paired tufts which are all rather short, and then diminish only slightly in length outwardly. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side.

Surinam.

Descriptions of male hypopygium and larva taken from the Bonnes' book "Mosquitoes of Surinam," as no material is before me. The very stout clasper is not well characteristic of *Chœroporpa.* The larvæ were found in a ground-pool.

CULEX (MOCHLOSTYRAX) INTRINCATUS Brèthes

CULEX INTRINCATUS Brèthes, An. Mus. Nac. Hist. B. A., xxviii, 214, 1916.
CULEX (CHŒROPORPA) CENUS Root, Am. Journ. Hyg., vii, 590, 1927.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding it by the length of the last joint and half the preceding one, black. Occiput with an area of narrow, curved, yellowish scales on the vertex, flat whitish ones on the sides. Mesonotum very dark brown, with brown, narrow, curved scales; pleuræ dull brown. (Abdomen missing.) Legs black with bronzy reflection, the femora whitish below. Wing-scales linear, becoming rather broadly ovate outwardly on second to fourth veins. Hypopygium (Plate XXVII, Fig. 264): Side-piece elliptical, convex without; inner division of the lobe furcate, divaricate, the inner limb nearly sessile, the outer moderate and stout, each with a long filament with swollen tip and small point; outer division columnar, with an inner continuing arm bearing a long and a short filament; middle filament appressed to the outer group, at the base of which outwardly a large leaf arises with asymmetrical swelling. Clasper stoutly snout-shaped, crested outwardly, with eye-seta, short outward groove, terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight large teeth. Ninth tergites rather large, elliptical, oblique, with many fine setæ from tubercular bases. Mesosomal plate rather widely furcate, inner limb erect, horn-like outer pointed, at right angles, third point curved, closely subapical.

Larva—Unknown.

Argentina, Brazil (Magé).

Described from Dr. Root's unique type of *cenus*.

CULEX (MOCHLOSTYRAX) CORENTYNENSIS Dyar

CULEX (CHŒROPORPA) CORENTYNENSIS Dyar, Ins. Ins. Mens., viii, 65, 1920.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding it by the length of the last joint and half the preceding one, black. Occiput with flat black scales that take a white reflection. Mesonotum dark brown, with narrow, curved, dark brown scales; pleuræ dark brown. Abdomen black without markings. Wing-scales narrow, ovate outwardly on second to fourth veins. Hypopygium (Plate LXXVII, Fig. 263): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, divaricate, the inner limb half as long as the outer, each with a long filament with expanded hooked tip; outer division quadrate, with long inner arm bearing long and short filaments; a long, narrow leaf from the stem half way to base; outer filaments on a short stout projection, three, sinuate. Clasper thickly snout-shaped, crested anteriorly, with eye-seta, anterior groove, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites rather small, elliptical, with fine setæ from tubercular bases and a clear margin. Mesosomal plate with the inner limb denticulate, somewhat broad, outer limb thumb-shaped, third point curved, closely subapical.

Larva—Unknown.

Surinam.

CULEX (MOCHLOSTYRAX) MANAOSENSIS Evans

CULEX (CHŒROPORPA) MANAOSENSIS Evans, Ann. Trop. Med. and Par., xviii, 370, 1924.

Female—Unknown.

Male—Proboscis black. Occiput with a triangular area of narrow, curved, pale scales, flat whitish scales on the sides. Mesonotum blackish brown, with narrow, curved, bronzy brown scales; pleuræ olivaceous brown. Abdomen blackish brown, sides with basal segmental whitish spots, the venter with the segments pale at base, black-banded apically. Legs blackish. Wing-scales widest outwardly, ovate on veins 2 to 4. Hypopygium (Plate LXXVII, Fig. 265): Inner division of the lobe of side-piece furcate, the inner arm at mid-stem of the outer, each with a long filament with enlarged tip; outer division thickly columnar with a long seta from base; tip truncate with a large ribbed leaf broadly inserted and four short filaments. Clasper thickly snout-shaped, minutely crested, with terminal horn and appendiculate spine. Ninth tergites ovate, small, with many fine setæ from tubercular bases. Mesosomal plate cup-shaped furcate, a third spine on the stem subapically.

Larva—Unknown.

Brazil (Manáos).

This species is not before me; the descriptions taken from Miss A. M. Evans's account.

CULEX (MOCHLOSTYRAX) MUTATOR Dyar and Knab

CULEX MUTATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 216, 1906.
Culex mutator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 422, 1915.
Culex (Chœroporpa) mutator Dyar, Ins. Ins. Mens., viii, 66, 1920.
CULEX (CHŒROPORPA) ALFAROI Dyar, Ins. Ins. Mens., ix, 34, 1921.
Culex (Choeroporpa) mutator Dyar, Ins. Ins. Mens., xi, 118, 1923.
Culex (Mochlostyrax) mutator Dyar, Ins. Ins. Mens., xiii, 174, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with narrow, curved, pale scales all over the vertex, the sides below with flat white and black ones. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ dark brown, marked with black; coxæ pale. Abdomen black with bronzy reflection; segments basally with or without transverse white bands; venter with the segments pale at base, blackish at tip, not very strongly banded. Legs black with bronzy reflection, the femora pale below. Wing-scales linear, outwardly on second to fifth veins ligulate.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint. Hypopygium (Plate LXXVII, Fig. 266): Side-piece elliptical, convex without; inner division of the lobe widely furcate, the inner arm half as long as the outer, each with a long filament with elliptical and T-shaped tip; outer division columnar, appressed to the outer limb of inner division, with a short inner arm bearing a long and a short filament; middle filament flame-shaped, appressed to the outer group, in which a large elliptical leaf arises. Clasper slenderly snout-shaped, constricted near the middle, the snout with curved groove, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten flat, blunt teeth. Ninth tergites elliptical, rather small, with many fine setæ from tubercular bases. Mesosomal plate stout, furcate, with rather long pointed arms, a curved third point closely subapical.

Larva—(Plate LXXVII, Fig. 266)—Head transverse, bulging at the

sides; antennæ large, a tuft at the outer third, the part beyond more slender, basal part spined; head-hairs upper three, lower single, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a patch three rows deep. Air-tube about five times as long as wide, the pecten reaching nearly one-third, followed by five tufts, decreasing in length outwardly, the basal one long, the terminal one less than half as long as it. Anal segment longer than wide, ringed by the plate, which is spinulated behind, ventral brush posterior; dorsal tuft a long hair and a long and a short one on each side. Anal gills shorter than the segment, pointed.

Mexico, Costa Rica, Panama.

The larvæ are found in ground-pools.

CULEX (MOCHLOSTYRAX) INHIBITATOR Dyar and Knab

Culex atratus Theobald (in part), Mon. Culic., ii, 55, 1901.
CULEX INHIBITATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 216, 1906.
CULEX INVESTIGATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 216, 1906.
CULEX LEPRINCEI Dyar and Knab., Journ. N. Y. Ent. Soc., xv, 202, 1907.
CULEX EGBERTI Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 214, 1907.
CULEX INVOCATOR Pazos, An. Ac. Cien. Méd. Fís. y Nat. Habana, xiv, 426, 1908.
CULEX TRACHYCAMPA Dyar and Knab, Can. Ent., xli, 101, 1909.
Culex invocator, trachycampa, investigator, inhibitator, leprincei, and *egberti* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 323, 329, 381, 397 and 421, 1915.
Culex (Mochlostyrax) egberti Dyar and Knab, Ins. Ins. Mens., v, 180, 1917.
CULEX (MOCHLOSTYRAX) PERIBLEPTUS Dyar and Knab, Ins. Ins. Mens., v, 181, 1917.
CULEX (MOCHLOSTYRAX) POSE Dyar and Knab, Ins. Ins. Mens., v, 182, 1917.
CULEX (MOCHLOSTYRAX) MOOREI Dyar, Ins. Ins. Mens., vi, 108, 1918.
Culex (Chœroporpa) peribleptus Dyar, Ins. Ins. Mens., vii, 161, 1919.
Culex (Chœroporpa) invocator, leprincei, peribleptus, moorei, and *inhibitator* Dyar, Ins. Ins. Mens., viii, 64, 66, 67, 68 and 76, 1920.
Culex (Chœroporpa) pose, egberti, peribleptus, and DEGUSTATOR Dyar, Ins. Ins. Mens., ix, 37, 38 and 39, 1921.
Culex (Chœroporpa) pose Dyar, Ins. Ins. Mens., x, 93, 1922.
Culex (Chœroporpa) pose, egberti, and *degustator* Dyar, Proc. U. S. Nat. Mus., lxii, 11 and 13, 1922.
CULEX (CHŒROPORPA) BORENQUINI Root, Amer. Journ. Hyg., ii, 400, 1922.
Culex (Chœroporpa) leprincei Dyar, Ins. Ins. Mens., xi, 119, 1923.
CULEX (CHŒROPORPA) TOVARI Evans, Ann. Trop. Med. and Par., xviii, 367, 1924.
Culex (Mochlostyrax) leprincei Dyar, Ins. Ins. Mens., xiii, 174, 1925.
Culex (Chœroporpa) leprincei Dyar, Ins. Ins. Mens., xiii, 214, 1925.
Culex (Chœroporpa) leprincei Root, Am. Journ. Hyg., vii, 586, 1927.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with the vertex with narrow, curved scales, black with whitish ones, the sides below with flat black and white scales, the latter especially along the eyes. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ dark brown, marked with black. Abdomen black, the sides with large basal segmental white spots, the posterior pair largest; venter with the segments white before, black-banded behind. Legs black with bronzy reflection, the femora broadly pale below, both femora and tibiæ more or less distinctly white at tip. Wing-scales narrow, those on second to fourth veins outwardly narrowly ovate.

Male—Coloration of the female, the abdomen often with white segmental basal bands. Palpi exceeding the proboscis by the length of the last joint and half the preceding. Hypopygium (Plate LXXVII, Fig. 267): Side-

piece elliptical, convex outwardly; inner division of the lobe widely and somewhat roundedly furcate, the limbs not longer than the stem, the inner shorter, each with a long filament with expanded and T-shaped tip; outer division columnar, appressed to the outer limb of inner division, with a small inner arm bearing a large hooked filament and a small one; middle filament adjacent to the outer group of three; a large leaf of irregular shape, often lobed or pointed inwardly, arises from a large insertion which in some aspects appears as a short outer stem. Tenth sternites narrow, comb-shaped, with about ten flat, blunt teeth. Ninth tergites large, elliptical, approximate, sometimes appearing with a basal lacuna, with many fine setæ from tubercular bases. Clasper rather thickly snout-shaped, the snout elliptical, almost imperceptibly crested, with groove, terminal horn and appendiculate spine. Mesosomal plate curved at tip, cup-shaped furcate, the inner limb sharp, with a large horn-shaped third point at mid-stem.

Larva—(Plate LXXVII, Fig. 267)—Head transverse, bulging at the sides; antennæ long, a tuft at outer third, the part beyond more slender, basal part spinulated; head-hairs, upper small, in four to six, lower long, single, small mid-hairs single, anteantennal tuft multiple. Body densely pilose, though sometimes the pile is pale and obscure. Lateral comb of the eighth segment of a number of spines in a rather small patch. Air-tube six times as long as wide, pecten reaching one-third, followed by six hair-tufts of approximately even length, the basal longest, but the apical one is more than half its length; two small tufts laterally on the tube. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills small, tapered.

Mississippi Valley and Southern States, Antilles, Mexico, Central America, Panama, Colombia, Venezuela, and the Guianas.

The larvæ occur in ground-pools. I have been in some doubt about referring *investigator* here. This is known only from larvæ. The original figure (Journ. N. Y. Ent. Soc., xiv, Plate X, Fig. 40, 1906) shows the head-hairs both single; but this is corrected in the monograph (Mosq. No. and Cent. Am. and W. I.; ii, Plate 105, Fig. 351), the upper being shown in fours. The pilosity on the abdomen is faint and pale, but present, the basal tuft of the tube not as elongate as usual. The specimens, however, indicate it longer than the figure, and I think that the synonymy may be accepted.

CULEX (MOCHLOSTYRAX) INNOMINATUS Evans

CULEX (CHŒROPORPA) INNOMINATUS Evans, Ann. Trop. Med. and Par., xviii, 363, 1924.
Culex (Chœroporpa) innominatus Root, Am. Journ. Hyg., vii, 587, 1927.

Female—Proboscis moderate, very slightly swollen at tip, black. Occiput with an area of narrow, curved scales which take a white reflection, flat black ones in front and below and white ones on the sides. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ nearly black, the coxæ greenish. Abdomen black, the sides with basal segmental white spots; venter with the segments white at base, black-banded at tip. Legs black, the femora pale below. Wing-scales linear, ovate outwardly on second to fourth veins.

Male—Coloration of the female, abdomen often with narrow basal segmental whitish bands. Palpi exceeding the proboscis by the length of the last joint and half the preceding one. Hypopygium (Plate LXXVIII, Fig. 268): Side-piece elliptical, convex outwardly; inner division of the

lobe stoutly conical, very indistinctly divided, the two limbs sessile and parallel, each with a long filament with hooked tip; outer division stoutly columnar, separate, with a stout inner arm bearing a long hooked filament and a slender shorter one; tip of division slightly projecting, bearing the middle filament to three outer filaments, and a delicate, indistinct, oval leaf. Clasper rather thickly snout-shaped, with eye-seta, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites rather large, elliptical, with many fine setæ from tubercular bases. Mesosomal plate furcate and with a third subapical point, the tip disk-shaped, with the three points on the margin, the middle one longest.

Larva (Plate LXXVIII, Fig. 268)—Head transverse, convex on the sides; antennæ large, a tuft at the outer third, the part beyond more slender, basal part spinulated; white-banded centrally; head-hairs upper in three, small, lower single, stout, and long, anteantennal tuft multiple. Body glabrous. Lateral comb of the eighth segment of many spines in a rather narrow patch, three rows deep in the middle. Single scale narrow, with a long sharp terminal point. Air-tube six times as long as wide, the extreme tip not tapered, the pecten reaching basal third, followed by five paired tufts which decrease in length outward, but the last is not less than half the first in length; the tube has a slight indication of a forward curve. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills shorter than the segment, pointed.

Venezuela and Brazil.

I have fresh material collected in Venezuela by Dr. M. Núñez Tovar, from which this description of the larva was taken. Dr. F. M. Root has kindly loaned me a slide of two larval skins from which he reared *innominatus* male; but the two skins do not agree with the Venezuelan specimen nor with each other.

	Head hairs	Comb-scales	Skin
Venezuela specimen..	Upper in three, small, delicate	Narrow, with single central point, in a narrow patch three rows deep	Glabrous almost completely
Brazil No 1 (24 *d* or *e*)	Upper in five, small, delicate	Moderately narrow, tips finely feathered, in a large patch three rows deep	Finely spicular
Brazil No 2 (24 *e* or *d*)	Upper in two, long and stout	Elliptical, large, with long sharp point, in a patch only two rows deep	Coarsely spicular

As there appear to be three species confused here, I am restricting the name *innominatus* to the Venezuelan form here described.

CULEX (MOCHLOSTYRAX) CARCINOPHILUS Dyar and Knab

CULEX CARCINOPHILUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 220, 1906.
Culex carcinophilus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 412, 1915.
Culex (Chœroporpa) carcinophilus Dyar, Ins. Ins. Mens., viii, 69, 1920.
Culex carcinophilus Root, Am. Journ. Hyg., vii, 464, 1927.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection, especially along the eye-margins. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ rather pale. Abdomen black with bronzy reflection; sides with basal segmental white spots; venter sordid white, the segments apically only slightly blackish shaded. Legs black, the femora whitish below; tibiæ with small apical white spot inwardly. Wing-scales, the outstanding ones linear, the appressed ones ovate even basally, outwardly rather broadly ovate on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint. Hypopygium (Plate LXXVIII, Fig. 270): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, the limbs short and subequal to the stem, the inner limb shorter, each with a long filament with swollen and hooked tip; outer division short, with a stout inner arm bearing a long, hooked filament and a setaform one; middle filament large; outer group two, with a large, broadly lanceolate leaf, strongly inserted. Clasper rather narrowly snout-shaped, the snout strongly crested, with the eye-seta and groove high up, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about six teeth. Mesosomal plate apparently shallowly furcate, with a third point subapical on the stem, but the mount is too much pressed.

Larva (Plate LXXVIII, Fig. 270)—Head transverse, bulging at the sides; antennæ long, rather slender, a tuft at outer third, the part beyond more slender, basal part spined; head-hairs, upper tuft large, six-haired, lower single, long, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a large triangular patch, the basal ones smaller. Air-tube long and slender, straight, ten times as long as wide, pecten on the basal fourth, followed by five small, subequal two-haired tufts, the outermost single. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills very small, not as long as width of segment.

Santo Domingo, Haiti.

The larvæ live in the water in crab-holes along the shore. The air-tube of the larva is unusually lengthened for a species of the *Chæroporpa* group, resembling that of *Melanoconion*. I have not received this species from any other West Indian island than Santo Domingo.

CULEX (MOCHLOSTYRAX) EVANSÆ Root

CULEX (CHŒROPORPA) EVANSÆ Root, Am. Journ. Hyg., vii, 593, 1927.

Female—(Proboscis missing. Occiput missing.) Mesonotum blackish, with narrow, curved, dark brown scales; pleuræ dark, tinged with green. Abdomen black with bronzy reflection, small basal segmental lateral white spots; venter banded, the segments narrowly white at their bases. Wing-scales linear, ovate broadly outwardly on second to fourth veins. Legs black with bronzy reflection, the femora whitish below.

Male—Coloration of the female. Hypopygium (Plate LXXVIII, Fig. 269): Side-piece elliptical, convex outwardly; inner division of the lobe divided, the inner limb short, outer rather long, each with a long filament with expanded hooked tip; outer division quadrate, with stout inner arm bearing a long, hooked filament and a short one; middle filament large and stout, a long, irregular, narrow leaf arising with it; outer group of three broadly inserted, the inner of them flame-shaped, the others sinuate.

Clasper thickly snout-shaped, serrate-crested in front, with terminal horn and appendiculate spine. Tenth sternites with narrow edge, comb-shaped, with about ten flat, blunt teeth. Ninth tergites broadly elliptical, moderate, approximate, oblique, with fine setæ from tubercular bases and clear outer margin. Mesosomal plate with the inner limb broad and somewhat numerously denticulate; outer limb a long, sharp point, third point curved, closely subapical, resembling the thick outer limb in texture.

Larva (Plate LXXVIII, Fig. 269)—Head transverse, bulging on the sides; antennæ large, a tuft at outer third, the part beyond slender, spinulated, the basal part white centrally, infuscated at base and outwardly. Upper head-hair triple, moderate, lower single, stout, anteantennal tuft multiple. Skin sparsely spicular. Lateral comb of the eighth segment of many spines in a patch four rows deep. Air-tube about six times as long as wide, straight or a little bent forward, with a blackish central band; pecten reaching over basal third, rather coarse, the last tooth detached, followed by five pairs of hair-tufts very irregularly inserted, decreasing in length outwardly, but all rather short. Anal segment longer than wide, ringed by the plate, spinulated posteriorly; dorsal tuft a long hair and a long and a short hair on each side. Anal gills longer than the segment.

Brazil (Magé).

Described from Dr. Root's types.

CULEX (MOCHLOSTYRAX) BASTAGARIUS Dyar and Knab

Culex bastagarius Dyar and Knab, Proc. Biol. Soc. Wash., xix, 170, 1906.

Culex bastagarius Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 424, 1915.

Culex (Chœroporpa) bastagarius Dyar, Ins. Ins. Mens., viii, 68, 1920.

Culex (Chœroporpa) bastagarius Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 302, 1925.

Female—Unknown.

Male—Proboscis rather long, swollen at tip, black apically, brown basally. Occiput with a few narrow, curved scales on the vertex, the rest with flat black scales that take a white reflection. Mesonotum brown, with narrow, curved, bright bronzy brown scales; pleuræ pale brown, green below, coxæ pale. Abdomen black, the segments with basal white bands; venter with the segments white basally, black apically. Legs black with bronzy reflection, femora pale below, tips of tibiæ with a white spot inwardly. Wing-scales linear, the appressed scales ovate, rather broadly so outwardly on second to fourth veins. Hypopygium (Plate LXXIX, Fig. 271): Side-piece elliptical, convex outwardly; inner division of the lobe cleft, the limbs appressed and parallel, the inner a little shorter, each with a long, hooked-tipped filament; outer division short, with an inner limb bearing a large filament and a smaller setaform one; middle filament approximate to the outer group of setæ, with which is a small, oval, transparent leaf with rather distinct insertion. Tenth sternites narrow, comb-shaped, with about eight long, blunt teeth. Ninth tergites elliptical, moderately large, with many fine setæ from tubercular bases. Mesosomal plate shallowly furcate, the inner arm shorter and pointed; a third horn-like point on the stem, not very closely subapical.

Larva (Plate LXXIX, Fig. 271)—Head transverse, bulging at the sides; antennæ long, a tuft at outer third, the part beyond more slender, basal

part spined. Upper head-hair in four, short, the rest missing. Lateral comb of the eighth segment of many small spines in a patch. Air-tube rather long and slender, straight, eight times as long as wide, the pecten reaching one-third; followed by six hair-tufts, the insertions of which only remain on the specimen. Skin practically glabrous. Anal segment longer than wide, ringed by the plate, which has spicules posteriorly; ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side; lateral tuft small. Anal gills slender, not as long as the segment.

Trinidad.

The larvæ occur in ground-pools.

CULEX (MOCHLOSTYRAX) VAPULANS Dyar

CULEX (CHŒROPORPA) VAPULANS Dyar, Ins. Ins. Mens., viii, 69, 1920.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection; some dark, narrow, curved ones on the nape. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ brown, marked with blackish in the incisures. Abdomen black, the sides with basal segmental white spots; venter banded, the segments whitish at base, black apically. Legs blackish with coppery reflection, femora pale below; tibiæ whitish at tip within. Wing-scales linear, ovate outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint and half the preceding. Hypopygium (Plate LXXIX, Fig. 272): Side-piece elliptical, convex without; inner division of the lobe widely furcate, the inner arm short, half as long as the outer, each with a long filament; outer division columnar, appressed to the outer limb of inner division, with a short inner arm bearing a large filament and a setaform one; middle filament adjacent to the outer group, which are slender and sinuate and include a small, widely lanceolate transparent leaf. Clasper rather broadly snout-shaped, minutely crested, with terminal horn and appendiculate appendage. Tenth sternites narrow, comb-shaped, with about ten fine teeth. Ninth tergites elliptical, moderate, with many fine setæ from tubercular bases. Mesosomal plate cup-shaped, furcate, with a third sharp point subapical on the stem.

Larva—Unknown.

Surinam.

CULEX (MOCHLOSTYRAX) COMMINUTOR Dyar

CULEX (CHŒROPORPA) COMMINUTOR Dyar, Ins. Ins. Mens., viii, 70, 1920.

Female—Unknown.

Male—Proboscis moderate, black. Palpi exceeding it by the length of the last joint and half the preceding. Occiput with flat black scales that take a white luster. Mesonotum dark brown with narrow, curved, bright bronzy brown scales; pleuræ pale brown, blackish in the incisures. Abdomen black, the segments with basal white bands; venter banded, the segments narrowly whitish at base. Legs dark brown with bronzy luster, the femora pale below. Wing-scales linear, ovate outwardly on second to fourth veins. Hypopygium (Plate LXXIX, Fig. 273): Side-piece elliptical, convex outwardly; inner division of the lobe widely roundedly furcate, the inner limb short, sessile, each with a long filament with flattened hooked tip; outer division columnar, inner arm short, bearing a long filament and shorter flame-shaped one; middle filament a large leaf, triangular outwardly; outer

filaments three, sinuate. Clasper distorted in the mount. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites small, trigonate, with a few fine setæ from tubercular bases (perhaps partly torn in the mount). Mesosomal plate furcate, the inner limb horn-like, a horn-like third point near base of stem.

Larva—Unknown.

Surinam.

CULEX (MOCHLOSTYRAX) EASTOR Dyar

CULEX (CHŒROPORPA) EASTOR Dyar, Ins. Ins. Mens., viii, 71, 1920.
Culex (Chœroporpa) eastor Dyar, Ins. Ins. Mens., xii, 184, 1924.

Female—Proboscis moderate, scarcely swollen at tip, black. Occiput with flat black scales that take a bronzy or white reflection. Mesonotum very dark brown, with narrow, curved, dark bronzy brown scales; pleuræ dark brown, black in the incisures. Abdomen black, the sides with small basal segmental white patches; venter largely black, the bases of the segments narrowly white. Legs black, the femora brown beneath; tips of tibiæ brown. Wing-scales ovate, broader outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint and half the preceding. Hypopygium (Plate LXXIX, Fig. 274): Side-piece elliptical, convex outwardly; inner division thick, furcate, the inner limb sessile at middle of stem, each with a large filament with bent T-shaped tip. Outer division of the lobe columnar, remote, with spinulations between, thick and truncate-tipped; at the inner angle a long filament; a large trigonate ribbed leaf at tip with two small adjacent filaments; an outer stout truncate filament, subapically inserted. Clasper stoutly snout-shaped, the swollen apex crested anteriorly, with groove, apical horn, and appendiculate appendage. Tenth sternites narrow, comb-shaped, with about ten flat blunt teeth. Ninth tergites elliptical, oblique, rather small, with many fine setæ from tubercular bases. Mesosomal plate stout, cup-shaped furcate, a third horn-like point on the stem closely subapical.

Larva—Unknown.

Surinam and Colombia.

CULEX (MOCHLOSTYRAX) MAXINOCCA Dyar

CULEX (CHŒROPORPA) MAXINOCCA Dyar, Ins. Ins. Mens., viii, 71, 1920.
CULEX (CHŒROPORPA) TOSIMUS Dyar, Ins. Ins. Mens., viii, 72, 1920.

Female—Unknown.

Male—Proboscis moderate, swollen at the tip, black. Palpi exceeding the proboscis by more than the length of the last joint. Occiput black, broadly with narrow, curved, dark scales that take a bronzy reflection; flat black and white ones on the sides. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ dark brown with black in the incisures, coxæ pale brown. Abdomen black with basal segmental white bands; venter black apparently. Legs black, the femora brown beneath. Wing-scales narrow inwardly, costally and outwardly, on second to fourth veins ovate, long, not very broad. Hypopygium (Plate LXXX, Fig. 275): Side-piece elliptical, convex without; inner division of the lobe widely furcate, inner limb half as long as the outer, arising from a thick base, each with a long, curved filament with flattened T-shaped tip; outer division appressed to the

inner, columnar, with a rather long inner or nearly terminal limb bearing a long and a short filament; middle filament wide, riding upon the base of the arm; outer filaments three in a dense group. Clasper moderately snout-shaped, the crest circularly enlarged and sometimes folded over, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten flat teeth. Ninth tergites rather large, elliptical, with many fine setæ from tubercular bases. Mesosomal plate V-shaped furcate, inner limb pointed, outer more rounded, a large third point on the stem arising toward the base.

Larva (Plate LXXX, Fig. 275)—Head transverse, bulging at the sides; antennæ long, a tuft at outer third, the part beyond slender, basal part spinulated, the antennæ entirely infuscated. Upper head-hair in three, lower single. Lateral comb of the eighth segment of many spines in a triangular patch, the basal spines smaller than the apical ones. Air-tube long, straight, slightly enlarged apically, eight times as long as the basal width, pecten reaching one-third, the terminal teeth somewhat detached, followed by three paired tufts subequal in length. Skin minutely and obscurely spicular. Anal segment longer than wide, ringed by the plate, which has a few spicules on the margin; ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills longer than the segment, slender, pointed.

Surinam.

The larvæ probably occur in ground-pools. All my material was given me by Dr. and Mrs. Bonne, but they do not recognize the species in their book. The larva would fall with *bastagarius* by their table; but that differs conspicuously in the antennæ, which are white basally and somewhat swollen, the air-tube shorter, with about five tufts (eleven insertions in the specimen), etc.

CULEX (MOCHLOSTYRAX) CURRYI Dyar

CULEX (CHŒROPORPA) CURRYI Dyar, Ins. Ins. Mens., xiv, 112, 1926.

Female—Proboscis moderate, scarcely swollen apically, black. Occiput covered with black forked scales, some narrow pale ones behind and small, flat, white ones on the side. Mesonotum brown, presumably with narrow, curved, bronzy brown scales (denuded); pleuræ brown. Abdomen entirely black above and below. Legs black, the femora pale beneath. Wing-scales ovate, especially costally and outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint. Hypopygium (Plate LXXIX, Fig. 276): Side-piece elliptical, convex without; inner division of the lobe furcate, not widely divaricate, the inner limb almost sessile before mid-stem of the outer, each with a long filament with T-shaped tip; outer division approximate to the inner, columnar, with inner apical arm bearing a long, hooked filament and a short one; middle filament large, adjacent to the outer group of three sinuate ones. Clasper rather narrowly snout-shaped, the snout occupying more than half, minutely crested, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight fine teeth. Ninth tergites moderate, elliptical, with many fine hairs from tubercular bases. Mesosomal plate widened fan-shaped, the margin granular, a long straight spine at mid stem.

Larva (Plate LXXIX, Fig. 276)—Head transverse, bulging on the sides; antennæ long, somewhat slender, a tuft at outer third, narrow, and black-

shaded, with some spinules, basal part spinulated, white. Head-hairs single, the upper short. Skin pale, spinulated, nearly glabrous centrally. Lateral comb of the eighth segment of many spines in a large patch. Air-tube about six times as long as wide, flared a little at the base, straight outwardly; pecten reaching over one-third, followed by five paired hair-tufts decreasing in length outwardly. Anal segment about as long as wide, ringed by the plate, the ventral brush posterior.

Panama.

The larvæ were found in a rock-pool by a trickling stream.

CULEX (MOCHLOSTYRAX) EDUCATOR Dyar and Knab

CULEX EDUCATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 217, 1906.
CULEX APATETICUS Howard, Dyar, and Knab (in part), and *Culex elevator* (not Dyar and Knab), Mosq. No. and Cent. Am. and W. I., iii, 321, 414, 1915.
Culex (Chœroporpa) educator Dyar, Ins. Ins. Mens., vi, 105, 1918.
CULEX (CHŒROPORPA) VAXUS Dyar, Ins. Ins. Mens., viii, 73, 1920.
Culex (Chœroporpa) educator Dyar, Ins. Ins. Mens., viii, 74, 1920.
CULEX (CHŒROPORPA) ANELES Dyar and Ludlow, the Mil. Surg., 1, 63, 1922.
Culex (Chœroporpa) aneles Dyar, Ins. Ins. Mens., x, 97, 1922.
Culex (Chœroporpa) educator Dyar, Ins. Ins. Mens., xiii, 22, 1925.
Culex (Mochlostyrax) aneles Dyar, Ins. Ins. Mens., xiii, 173, 1925.
Culex (Mochlostyrax) educator Dyar, Ins. Ins. Mens., xiii, 174, 1925.
Culex (Chœroporpa) educator Root, Am. Journ. Hyg., vii, 586, 1927.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with flat black scales that take a white reflection. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ dull brown, often black-marked in the incisures. Abdomen black, with small lateral basal segmental whitish spots; venter indistinctly banded, the segments pale at base. Legs black, femora brown below. Wing-scales linear, ovate outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint and half of the preceding one. Hypopygium (Plate LXXX, Fig. 277): Side-piece elliptical, convex without; inner division of the lobe divided, shortly divaricate, the inner limb half a long as the outer, each with a long filament with T-shaped tip; outer division near but not contiguous to the inner, shortly columnar, with an inner continuing arm bearing a long and a short filament; middle filament at the base of the arm, close to the three outer sinulate filaments, the bases of which form a slight angular projection. Clasper rather stoutly snout-shaped, with curved groove, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten flat, blunt teeth. Ninth tergites rather small, elliptical, with many fine setæ from tubercular bases. Mesosomal plate curved, rather shallowly furcate, the inner arm denticulate, a large curved third point somewhat above mid-stem.

Larva (Plate LXXX, Fig. 277)—Head transverse, bulging on the sides; antennæ long, a tuft at outer third, the part beyond slender, basal part spined; head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a large patch. Air-tube about seven times as long as wide, straight, pecten reaching the basal third, followed by five hair-tufts, diminishing in length outwardly, the last less than half as long as the first; two small single hairs on the side of the tube. Anal segment longer than wide, ringed by the plate, which is spinulated posteriorly,

ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills nearly as long as the segment, pointed.

Costa Rica, Panama, Colombia, Venezuela, Surinam, Brazil.

The larvæ occur in ground-pools. *Aneles* was separated on the supposition that there was a small leaf on the outer division of the lobe of the side-piece of the male hypopygium; but a careful re-examination of the slides has failed to reveal it to me. Dr. Root lately found the species at Maracay, Venezuela.

CULEX (MOCHLOSTYRAX) CHRYSOTHORAX Peryassú

MELANOCONION CHRYSOTHORAX Peryassú, Os Culic do Braz., 244, 1908.
Melanoconion chrysothorax Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 205, 1911.
Culex (Chœroporpa) theobaldi Dyar (in part), Ins. Ins. Mens., xi, 70, 1923.
Culex (Mochlostyrax) tæniopus Dyar (in part), Ins. Ins. Mens., xiii, 170, 1925.

Female—Coloration of the male, the abdominal bands less visible on the basal segments.

Male—Proboscis blackish. Palpi dark brown, ringed with white. Occiput with narrow, curved, yellowish white scales, and yellowish and black flat scales below. Mesonotum with three dark lines with golden scales inclosing two dark spots in front of the wing-bases. Abdomen black with violet reflection, the segments with basal white bands, widening on the sides. Legs blackish, with bronzy reflection, the tarsi with white rings, probably involving both ends of the joints. Wing-scales narrow, ovate outwardly on second to fourth veins. Hypopygium unknown.

Larva—Unknown.

Brazil.

This species is not before me, the description being compiled from Surcouf and Gonzales Rincones. At one time I thought this to be *tæniopus*, but now I think more likely it is a distinct species, the peculiar ringing of the tarsi being a parallel development.

CULEX (MOCHLOSTYRAX) CHRYSONOTUM Dyar and Knab

CULEX CHRYSONOTUM Dyar and Knab, Proc. U. S. Nat. Mus., xxv, 57, 1908.
Culex chrysonotum Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 310, 1915.
Culex (Chœroporpa) chrysonotum Dyar, Ins. Ins. Mens., xiii, 59, 1920.
Culex (Chœroporpa) chrysonotum Dyar, Ins. Ins. Mens., xi, 70, 1923.
Culex (Chœroporpa) theobaldi Bonne and Bonne-Wepster (in part), Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 293, 1925.
Culex (Mochlostyrax) chrysonotum Dyar, Ins. Ins. Mens., xiii, 175, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with narrow, curved, golden scales broadly over the vertex, flat white ones on the sides below. Mesonotum black, the anterior half golden-scaled, dark brown behind; pleuræ blackish. Abdomen black with violaceous reflection, the sides with basal segmental small white spots; venter banded, the segments pale at base. Legs black, the femora whitish below. Wing-scales linear, ovate outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by nearly the length of the last two joints. Hypopygium (Plate LXXXI, Fig. 278): Side-piece elliptical, convex without, inner division of the lobe furcate, the arms divaricate, inner short, outer twice as long, each with a long filament

with a T-shaped tip; outer division approximate, narrowly columnar and widened, with inner continuing arm bearing a long hooked and short flame-shaped filament; middle filament at the base of the arm, near the three outer sinuate filaments. Clasper snout-shaped, constricted before the snout, with groove, terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites rather small, elliptical, with many fine setæ from tubercular bases. Mesosomal plate long, curved, shortly cup-shaped furcate.

Larva (Plate LXXXI, Fig. 278)—Head transverse, the sides bulging; antennæ large, a tuft on the outer third, the part beyond slender, basal part spined; head-hairs single, anteantennal tuft multiple. Body pilose. Lateral comb of the eighth segment of rather few spines in a patch two rows deep. Air-tube six times as long as wide, straight, the pecten reaching beyond the basal third; six paired tufts, the first within the pecten, decreasing in length outwardly, the last half as long as the first; two small tufts on the side. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side; a single small lateral hair. Anal gills shorter than the width of the segment.

Panama, Venezuela, Surinam. Recent material, Maracay, Aragua, Venezuela, October 8, 1926 (M. Núñez Tovar).

The larvæ occur in ground-pools. This species comes near *theobaldi,* but is distinguished as indicated under that heading.

CULEX (MOCHLOSTYRAX) THEOBALDI Lutz

MELANOCONION THEOBALDI Lutz, Imp. Med. Feb. 10, 1905.
Melanoconion theobaldi Peryassú, Os. Culic. do Braz., 236, 1908.
NEOMELANOCONION CHRYSOTHORAX Newstead and Thomas (not Peryassú), Ann. Trop. Med. and Par., iv, 145, 1910.
Melanoconion theobaldi Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 206, 1911.
Culex (Neomelanoconion) chrysothorax Gordon and Evans, Ann. Trop. Med. and Par., xvi, 322, 1922.
Culex (Chœroporpa) theobaldi Bonne and Bonne-Wepster (in part), Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 293, 1925.
Culex (Chœroporpa) chrysothorax Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 296, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with narrow curved golden scales behind, flat white ones across the front and on the sides below. Mesonotum black, the anterior half golden-scaled, dark brown behind; pleuræ blackish. Abdomen black with violaceous reflection, the sides with basal segmental small white spots; venter banded, the segments pale at base. Legs black, the femora whitish below. Wing-scales linear, ovate outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by nearly the length of the last two joints. Hypopygium (Plate LXXXIII, Fig. 290): Side-piece elliptical, convex without; inner division of the lobe furcate, the arms subparallel, inner short, outer twice as long, each with a long filament with T-shaped tip; outer division separate, columnar, and widened, with inner continuing arm bearing a long hooked and short flame-shaped filament; middle filament at the base of the arm, near the three outer sinuate filaments. Clasper snout-shaped, constricted before the snout, with

groove, terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites rather small, elliptical, with many fine setæ from tubercular bases. Mesosomal plate widely furcate, the short stem scarcely longer than the arms.

Larva—Unknown.

Brazil.

This species differs from *chrysonotum* not only in the hypopygium, but in the broader wing-scales and less narrow curved scales on the head. It is its Brazilian representative, however, and closely allied.

CULEX (MOCHLOSTYRAX) BIBULUS Dyar

CULEX (CHŒROPORPA) BIBULUS Dyar, Ins. Ins. Mens., viii, 74, 1920.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding it by the length of the last joint and half of the preceding, black. Occiput with flat black scales that take a whitish reflection. Mesonotum dark brown, with narrow, curved, pale golden scales; pleuræ dull grayish, with black marks in the incisures. Abdomen black with basal segmental white bands; venter black and whitish banded, the segments pale at their bases. Legs dark brown with bronzy reflection, the femora whitish below, tibiæ with a whitish spot at tip within. Wing-scales narrow, ovate outwardly on second to fourth veins. Hypopygium (Plate LXXXI, Fig. 280): Side-piece elliptical, convex outwardly; inner division of the lobe divided, divaricate, the inner limb nearly sessile, the outer curved, each with a long filament with expanded T-shaped tip; outer division near the inner but not appressed, columnar, a little expanded, with inner continuing arm bearing long and short filaments; middle filament strongly inserted, but not exceeding the three outer sinulate filaments. Clasper rather thickly snout-shaped, with curved groove, eye-seta, terminal horn, and appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten fine teeth. Ninth tergites moderate, elliptical, oblique, with many fine setæ from tubercular bases. Mesosomal plate furcate, the limbs rather long, the inner distinctly denticulate, a large, curved third point closely subapical.

Larva (Plate LXXXI, Fig. 280)—Head transverse, bulging at the sides. (Antennæ missing.) Head-hairs, upper in two, weak, lower single, strong. Lateral comb of the eighth segment of large pointed scales in a patch three rows deep. Skin pilose. Air-tube about six times the basal width, straight or with a slight forward curve, pecten reaching beyond the basal third, followed by five paired hair-tufts decreasing in length outwardly, the last tuft half a long as the first. Anal segment as long as wide, ringed by the plate, which is spinulate behind, ventral brush posterior. Dorsal tuft a long hair and a long and two short hairs on each side.

Surinam.

Known only from a single bred male, which is very close to *educator* and may be that species. However, the mesonotal scaling of the adult is too golden, the male hypopygium seems to have the third spine of the mesosomal plate actually subapical (the slide is overpressed and hardly legible), while the larva has the upper head-hair double instead of single. On account of these differences I let the name stand for the present.

CULEX (MOCHLOSTYRAX) IOLAMBDIS Dyar

CULEX (CHŒROPORPA) IOLAMBDIS Dyar, Ins. Ins. Mens., vi, 105, 1918.
Culex (Chœroporpa) iolambdis Dyar, Ins. Ins. Mens., viii, 75, 1920.
Culex (Chœroporpa) iolambdis Dyar, Ins. Ins. Mens., x, 96, 1922.
Culex (Mochlostyrax) iolambdis Dyar, Ins. Ins. Mens., xiii, 175, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with flat black scales that take a white reflection, white ones on the sides. Mesonotum dark brown with narrow curved bronzy brown scales; pleuræ dark brown. Abdomen black, with basal segmental lateral whitish spots; venter with the segments pale at base, black outwardly. Legs black with bronzy luster, the femora whitish beneath. Wing-scales narrow, only narrowly ovate outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black. Wing-scales somewhat broader than in the female. Hypopygium (Plate LXXXI, Fig. 281): Side-piece elliptical, convex outwardly; inner division of the lobe divided, the limbs subparallel, the inner less than half as long as the outer, each with a long filament with bent, hooked tip; outer division approximate, not appressed, columnar, short, with inner continuing arm bearing a long hooked and a short flame-shaped filament; middle filament at the base of the arm; outer three sinulate filaments near the base of the division. Clasper rather narrowly snout-shaped, with groove, terminal horn, and appendiculate appendage. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites subspherical, moderate, with fine setæ from tubercular bases, leaving a clear outer margin. Mesosomal plate shallowly furcate, the third point subapical, arising from the base of the outer limb.

Larva—Unknown.

Panama.

This species has been only occasionally found, so that the larva has not been isolated. It occurs in ground-pools.

CULEX (MOCHLOSTYRAX) SURSUMPTOR Dyar

CULEX (CHŒROPORPA) SURSUMPTOR Dyar, Ins. Ins. Mens., xii, 123, 1924.
CULEX (CHŒROPORPA) LIGATOR Dyar, Ins. Ins. Mens., xii, 123, 1924.
Culex (Chœroporpa) sursumptor Dyar, Ins. Ins. Mens., xii, 183, 1924.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with flat, pale scales along the front margin and sides, a large area of narrow, curved, yellowish ones mixed with black forked scales behind. Mesonotum dark brown with narrow, curved, dark brown scales; pleuræ brown, with black marks in the incisures. Abdomen black, the segments with basal white bands; venter with the segments black, only narrowly white at their bases. Legs black with bronzy reflection; femora whitish below. Wing-scales narrow, ligulate only outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint. Wing-scales rather broader outwardly. Hypopygium (Plate LXXXII, Fig. 282): Side-piece elliptical, convex without; inner division of the lobe furcate, roundedly divaricate, the two limbs equal, each with a long, sinuate, hooked-tipped filament; outer division columnar, appressed to the inner, with an inner continuing arm bearing a long hooked filament and shorter pointed one; middle filament adjacent to the three outer sinuate ones. Clasper rather stoutly snout-shaped, minutely crested,

with groove, terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten flat, blunt, dense teeth. Ninth tergites elliptical, rather large, remote, oblique, with many fine setæ from tubercular bases. Mesosomal plate furcate, the inner arm rather broad and erect, the outer at right angles, the third point curved, opposite the outer limb.

Larva (Plate LXXXII, Fig. 282)—Head transverse, bulging at the sides; antennæ long, a tuft at the outer third, the part beyond slender, spinulate throughout; outer third only slightly less infuscated than the basal part; head-hairs, upper in two, small and weak, lower single, large. Skin finely spinulate on thorax and posteriorly, nearly glabrous centrally. Lateral comb of the eighth segment of many spines in a patch. Air-tube about six times as long as wide, pecten long, reaching the basal third, followed by five hair tufts, diminishing in length outwardly, the outer one-half the length of the basal one; two single hairs laterally. Anal segment as long as wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side.

Colombia (Barranquilla).

The larvæ occur in ground-pools.

CULEX (MOCHLOSTYRAX) ANDRICUS Root

CULEX (CHŒROPORPA) ANDRICUS Root, Am. Journ. Hyg., vii, 592, 1927.

Female—Unknown.

Male—Proboscis moderate, very slightly swollen at tip, black with bronzy reflection. Occiput with flat white scales (denuded in front). Mesonotum dark brown, with brown, narrow, curved scales; pleuræ blackish brown, coxæ pale. (Abdomen removed for mounting). Legs black with bronzy reflection, the femora whitish beneath. Wing-scales narrow, becoming rather broadly ovate outwardly on second to fourth veins. Hypopygium (Plate LXXXI, Fig. 283): Side-piece elliptical, convex outwardly; inner division of the lobe furcate, the limbs subparallel, the inner very short, not half as long as the outer, each with a long, sinuate filament with hooked tip; outer division remote, thickly columnar, then oblique, with a stout inner arm bearing a thick hooked filament and a shorter pointed one; middle filament rather free, followed by three outer sinuate filaments. Clasper snout-shaped (snout broken in the mount, but the initial constriction is obvious). Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites moderate, elliptical, approximate, with many fine setæ from tubercular bases. Mesosomal plate with the three points in a triangle, all three alike, curved and horn-like.

Larva—Unknown.

Brazil (Lassance).

Described from Dr. Root's unique type.

CULEX (MOCHLOSTYRAX) JONISTES Dyar

CULEX (CHŒROPORPA) JONISTES Dyar, Ins. Ins. Mens., viii, 76, 1920.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding proboscis by nearly the length of the last two joints, black. Occiput with flat black scales with a white reflection, some white ones on the side. Mesonotum reddish brown, with narrow, curved, bronzy brown scales; pleuræ luteous greenish with a black line above. Abdomen black with basal seg-

mental white bands; venter with the segments narrowly white at base. Legs black with bronzy reflection, the femora whitish beneath, tibiæ whitish at tips inwardly. Wing-scales rather broadly ovate outwardly on second and third veins, else narrow. Hypopygium (Plate LXXXII, Fig. 284): Side-piece elliptical, convex outwardly; inner division of the lobe broad, briefly cleft, the arms parallel, the inner shorter than the outer, sessile at the outer third, each with a long filament with enlarged bent tip; outer division columnar, the hooked and the short filaments arising from the inner angle and grooved down toward base; middle filament at the summit; outer group apparently two only, arising from a slight prominence. Clasper snout-shaped (obscured in the mount). Tenth sternites narrow, comb-shaped, with about six teeth. Ninth tergites elliptical, moderate, oblique, with many fine setæ from tubercular bases. Mesosomal plate with three curved points at the summit, inner erect, outer transverse, third point curving from the base of the inner.

Larva—Unknown.

Surinam.

The unique specimen was probably bred from a ground-pool.

CULEX (MOCHLOSTYRAX) XIVILIS Dyar

CULEX (CHŒROPORPA) XIVILIS Dyar, Ins. Ins. Mens., viii, 78, 1920.
CULEX (CHŒROPORPA) CUCLYX Dyar and Shannon, Ins. Ins. Mens., xii, 48, 1924.
Culex (Mochlostyrax) cuclyx Dyar, Ins. Ins. Mens., xiii, 175, 1925.

Female—Unknown.

Male—Proboscis moderate, slightly swollen apically, black. Occiput blackish, with narrow, curved, bronzy yellowish scales over the vertex, broader on the sides below. Mesonotum dark brown, with bright bronzy brown, narrow, curved scales; pleuræ dull grayish, marked with black in the incisures. Abdomen black, the segments with narrow basal white bands; venter with the segments narrowly whitish at their bases. Legs black with bronzy reflection, the femora whitish beneath. Wing-scales narrow, narrowly ovate outwardly on second to fourth veins. Hypopygium (Plate LXXXII, Fig. 286): Side-piece elliptical, convex outwardly; inner division of the lobe shortly cleft, the arms parallel and approximate, the inner shorter than the outer, each with a long filament with hooked tip; outer division separated, quadrate, with a curved inner arm bearing a long filament and a shorter setaform one; on the outer angle four filaments, three of them with spatulately widened tips. Clasper narrowly snout-shaped, the snout small, constriction central, rather coarsely crested outwardly, with eye-seta, terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites elliptical, rather large, approximate, oblique, with many fine setæ from tubercular bases. Mesosomal plate slender, the apex enlarged, a small apical point, large lateral one, third point subapical, parallel to the lateral one.

Larva (Plate LXXXII, Fig. 286)—Head transverse, bulging at the sides; antennæ large, a tuft at outer third, the part beyond slender, basal part spined, white, the extreme base and outer portion infuscated; head-hairs single, the upper fine, lower coarse, anteantennal tuft multiple (in seven). Lateral comb of the eighth segment of many small spines in a patch, the basal ones only a little smaller than the apical ones. Air-tube about six times as long as wide, straight, the pecten exceeding the basal third, the out-

ward spines coarse, followed by five paired tufts, the pairs quite irregular, diminishing in length outwardly, but not very strongly so, the outer tuft being more than half the length of the basal one. Skin sparsely spicular at the ends, glabrous centrally. Anal segment as long as wide, ringed by the plate, spined posteriorly; dorsal tuft a long hair and a long and a short hair on each side. Anal gills as long as the segment.

Panama and Surinam.

The larvæ occurred in ground-pools. A careful comparison of the hypopygium of *xivilis* and *cuclyx* shows them to be alike. I have no larvæ of *cuclyx,* but it is probable that they will be found to agree. This is a wider distribution than usual in *Chœroporpa,* although *educator* has the same distribution.

CULEX (MOCHLOSTYRAX) IDOTTUS Dyar

CULEX (CHŒROPORPA) IDOTTUS Dyar, Ins. Ins. Mens., viii, 77, 1920.

Female—Unknown.

Male—Proboscis moderate, slightly swollen at tip, black. Palpi exceeding proboscis by more than the length of the last joint. Occiput with small, flat, dull white scales over vertex, a small black spot on each side. Mesonotum dark reddish brown, with narrow, curved, bright bronzy brown scales; pleuræ dark brown, marked with black above. Abdomen black (damaged). Legs blackish with bronzy reflection, the femora whitish beneath. Wing-scales narrow, the broadest outwardly on second to fourth veins not wider than ligulate, with slightly bulbous tips. Hypopygium (Plate LXXXIII, Fig. 285): Side-piece elliptical, convex outwardly; inner division of the lobe scarcely cleft, the inner limb sessile at mid-stem, parallel, appressed, each with a long filament with widened hooked tip; outer division apart, some spicules between, short, conical, all the filaments appressed, inner arm short; long and short inner, middle and three outer filaments, the last outer one somewhat separated, long-stemmed and with a square scythe-shaped tip. Clasper rather stoutly snout-shaped, apparently of normal structure (damaged in the mount). Tenth sternites narrow, comb-shaped, with about ten fine teeth. Ninth tergites elliptical, rather large, approximate, oblique, with many fine setæ from tubercular bases. Mesosomal plate furcate shallowly, both limbs pointed and curved laterally, third point subapical, a strong reflexed hook.

Larva—Unknown.

Surinam.

The larva was probably found in a ground-pool. Known only by the single male type.

CULEX (? MOCHLOSTYRAX) INDECORABILIS Theobald

MELANOCONION INDECORABILIS Theobald, Mon. Culix., iii, 241, 1903.
Neomelanoconion indecorabilis Peryassú, Os Culic. do Braz., 246, 1908.
Melanoconion indecorabilis Theobald, Mon. Culic., v, 457, 1910.
Melanoconion indecorabilis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 209, 1911.
Melanoconion indecorabilis Dyar, Ins. Ins. Mens., vi, 110, 1918.

Female—Proboscis swollen apically, blackish brown. Head with dusky brown, narrow, curved scales, a border of white, narrow, curved scales around the eyes. Mesonotum blackish brown, with narrow, curved, bronzy-brown scales; pleuræ paler brown. Abdomen entirely black; venter with

an ochraceous tinge. Legs blackish brown. Wing-scales ligulate, ovate outwardly on second to fourth veins.

Male—Abdomen with traces of basal segmental white bands. Palpi longer than the proboscis. Hypopygium unknown.

Larva—Unknown.

Brazil (Pará).

Theobald placed his male doubtfully with the females because it had pale abdominal bands; but this is not an unusual sexual variation in *Chœroporpa*. The species can be placed when the male type has been mounted and described. The large number of narrow, curved scales on the head is an unusual feature, reminiscent of *manaosensis* Evans, which may be allied to this.

CULEX (? MOCHLOSTYRAX) NIGRESCENS (Theobald)

Danielsia nigrescens Theobald, Mon. Culic., iv, 248, 1907.
Danielsia nigrescens Peryassú, Os Culic. do Braz., 176, 1908.
Danielsia nigrescens Theobald, Mon. Culic., v, 245, 1910.
Danielsia nigrescens Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 147, 1911.

Female—Unknown.

Male—Proboscis deep brown. Occiput with flat black scales that take a whitish reflection. Mesonotum deep brown with narrow, curved, bronzy brown scales. Abdomen black, the segments with basal small, white, lateral spots. Wing-scales ovate outwardly on second to fourth veins. Hypopygium unknown.

Brazil (Santo Amaro).

This species can be identified when Theobald's type has been mounted and the hypopygium described. Without this information it can not be placed, as the description would fit any one of a number of *Chœroporpa* species.

CULEX (? MOCHLOSTYRAX) SIMULATOR Dyar and Knab

Culex simulator Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 218, 1906.
Culex simulator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 302, 1915.

Female—Unknown.

Male—Unknown.

Larva (Plate LXXXIII, Fig. 287)—Head transverse, bulging on the sides; antennæ large, a tuft at the outer third, the part beyond slender, basal part spined; head-hairs upper in two, lower single, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a patch three rows deep. Air-tube about six times as long as wide, straight, a little contracted centrally, pecten reaching basal third, followed by five paired hair-tufts, all rather short and decreasing only little in length outwardly. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side; a single lateral hair. Anal gills longer than the segment, slender, pointed.

Trinidad.

The larvæ were found in a ground-pool, but not bred. It comes very near to *coppenamensis* Bonne-Wepster and Bonne, and is possibly an earlier name for that species. However, not enough is known about the early stages of these species to make a positive reference.

CULEX (? MOCHLOSTYRAX) DECORATOR Dyar and Knab

CULEX DECORATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 218, 1906.
Culex decorator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 427, 1915.

Female—Unknown.

Male—Unknown.

Larva (Plate LXXXIII, Fig. 288)—Head transverse, bulging on the sides; antennæ large, a tuft at outer third, the part beyond slender, basal part spinulated. Head-hairs upper in three, lower single, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a triangular patch. Air-tube long and straight, very slightly tapered, over seven times as long as wide, pecten reaching one-fourth; four paired tufts on the posterior margin, decreasing in length outwardly. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long and two short hairs on each side. Anal gills very small, tapered.

Trinidad.

The larvæ were found in water in a bamboo joint, but have never been bred. The larva appears to be a *Chœroporpa;* but the habitat, if normal, is distinctly unusual. This may prove an earlier name for some *Chœroporpa* subsequently described from the adult alone from Trinidad or Surinam.

CULEX (? MOCHLOSTYRAX) GRAVITATOR Dyar and Knab

CULEX GRAVITATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 218, 1906.
Culex gravitator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 448, 1915.

Female—Unknown.

Male—Unknown.

Larva (Plate LXXXIII, Fig. 289)—Head transverse, bulging on the sides; antennæ large, a tuft at outer third, the part beyond slender, basal part spinulated. Head-hairs both single, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a large triangular patch. Air-tube long, straight, over six times as wide as long, pecten nearly to one-third; five paired tufts beyond, diminishing in length outwardly. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side. Anal gills shorter than the segment, tapered.

Mexico (Córdoba).

The larvæ occurred in the leaf-bases of Bromeliaceæ, but are in structure of ordinary *Chœroporpa* form. From the unusual habitat, the species is probably distinct, but no adults have as yet been bred. Compare *automartus* Root from Brazil.

CULEX (? MOCHLOSTYRAX) NIGRICORPUS (Theobald)

AËDES NIGRICORPUS Theobald, Mon. Culic., ii, 231, 1901.
Verrallina nigricorpus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 225, 1911.
Culex nigricorpus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 322, 1915.

Female—Occiput with flat black scales, whitish on the sides below. Mesonotum black, with narrow, curved, bronzy black scales; pleuræ dark brown. Abdomen black, the sides with basal segmental white spots; venter

with the segments white at base, black at tip. Legs black-scaled. Wing-scales linear, ovate outwardly on the second to fourth veins.

Male—Unknown.

Larva—Unknown.

Brazil (Itacoatiara, Lower Amazon).

This name can never be identified with certainty. The description from a female fites any one of the darker *Chæroporpa* species, of which there may be a dozen in the locality. The name will have to be arbitrarily assigned when fresh material from the place is in hand.

CULEX (? MOCHLOSTYRAX) HUMILIS Theobald

CULEX HUMILIS Theobald, Mon. Culic., ii, 336, 1901.
Culex humilis Theobald, Mon. Culic., v, 456, 1910.
Culex humilis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 207, 1911.

Female—Proboscis moderate, swollen at tip, black outwardly, browner toward base. Occiput with a large triangular area of narrow, bronzy brown scales on the vertex, succeeded by flat white ones on the sides, mixed with some black. Mesonotum reddish brown, with narrow, curved, bronzy brown scales; pleuræ and coxæ dark brown. Abdomen black with slight bronzy luster, the sides with large basal segmental white spots; venter very distinctly banded, the segments white at base, black apically. Legs black with bronzy reflection, the femora whitish beneath. Wing-scales linear, toward the tips of veins 2 to 4 somewhat broadly ovate.

Male—Palpi exceeding the proboscis. Hypopygium unknown.

Larva—Unknown.

Brazil (São Paulo).

I have a female received from Dr. A. Lutz which agrees with Theobald's description. The head scaling is unusual, but the name can not be positively identified until the male specimen in the British Museum has been mounted and described.

CULEX (? MOCHLOSTYRAX) FASCIOLATUS (Lutz)

MELANOCONION FASCIOLATUS Lutz, Imp. Med., Feb. 10, 1905.
Melanoconion fasciolatum Peryassú, Os Mosq. do Braz., 239, 1908.
Melanoconion fasciolatum Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 205, 1911.

Female—Proboscis uniform, black. Occiput with narrow, curved, creamy scales. Mesonotum brown with seven paler lines, three in front and two on the sides, formed of narrow, curved scales, pale golden and cream color. Abdomen black with lateral segmental white spots, distinct on sixth and seventh segments; venter banded with black and white. Legs black, tips of femora and tibiæ white. Wing-scales ovate outwardly on second to fourth veins.

Male—Unknown.

Larva—Unknown.

Brazil.

Bred from larvæ in ground-pools (agua de brejo) in mountainous forest near São Paulo. This species must remain unrecognizable until males can be had from the same faunal region. The stripes described on the mesonotum may be without significance, the vestiture often appearing streaked in this way in the brighter colored *Chæroporpa* species.

CULEX (? MOCHLOSTYRAX) LUGENS Peryassú

CULEX LUGENS Peryassú, Os Culic. do Braz., 207, 1908.
Culex lugens Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 178, 1911.

Female—Proboscis black. Occiput with flat black scales with white reflection, with a few narrow, curved, black ones. Mesonotum dark with narrow, curved, bronzy brown or creamy scales. Abdomen blackish, the sides with basal segmental white patches. Legs dark brown. Wing-scales linear, ovate outwardly on second to fourth veins.

Male—Coloration of the female. Hypopygium unknown.

Larva—Unknown.

Brazil.

This description is compiled from Surcouf and Gonzales Rincones' translation of Peryassú's original Portuguese. I have toned down somewhat the brilliance of the colors described, as these were obviously due to examining the specimens under a too high magnification. There remains an ordinary *Chœroporpa* form, which can be identified only when one of the original males has been mounted and described. Subsequent males might easily belong to another species.

Subgenus MELANOCONION Theobald

Section TINOLESTES Coquillett

CULEX (MELANOCONION) LATISQUAMA (Coquillett)

TINOLESTES LATISQUAMA Coquillett, Proc. Ent. Soc. Wash., vii, 185, 1906.
Culex latisquama Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 303, 1915.
Culex (Tinolestes) latisquama Dyar, Ins. Ins. Mens., vi, 192, 1915.
Culex (Tinolestes) latisquama Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 278, 1925.
Culex (Tinolestes) latisquama Dyar, Ins. Ins. Mens., xiii, 168, 1925.

Female—Proboscis moderate, swollen at the tip, black outwardly, brown basally. Occiput with rather narrow, flat, black scales with violaceous or whitish luster. Mesonotum brown, with narrow, curved, dark brown scales; pleuræ dark brown. Abdomen black, with traces of lateral pale spots; sometimes distinct; venter pale grayish, the terminal segments apically faintly blackish. Legs dark brown with bronzy reflection, femora whitish below. Wing-scales narrow, even outwardly only slightly club-shaped at tip.

Male—Coloration of the female. Palpi only half as long as the proboscis. Wing-scales somewhat broader, the outermost ones ligulate. Hypopygium (Plate LXXXIV, Fig. 291): Side-piece curved, parallel sided, truncate at tip, rounded, enlarged at insertion of clasper; the lobe preceded by a patch of setæ, itself stoutly quadrate, with two short, stout spines with widened truncate tips, and a third pointed one more basally inserted. Clasper thick, a little enlarged centrally, the tip tapered, with stout terminal spine. Tenth sternites narrow, comb-shaped, with about twenty flat teeth, the outer ones finer. Ninth tergites small, transversely elliptical, remote, covered with rather stiff setæ. Mesosomal plate furcate, thick at base, sinuate, inner limb horn-like, outer sinuate and with outwardly directed terminal point. Parameres small, spatulate, from triangular bases as in *Deinocerites*, but much smaller.

Larva (Plate LXXXIV, Fig. 291)—Head transverse, rounded quadrate; antennæ large, a tuft at outer third, the part beyond slender, basal part spinulated, the organ darkly infuscated. Head-hairs, upper in four, long, lower single and longer than the upper. Lateral comb of the eighth segment a large patch of spines, basal ones small, outer ones large. Air-tube slender, long, straight, about ten times as long as wide, the pecten reaching nearly the basal third; hairs obsolete. Anal segment as wide as long, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and four very short ones on each side. Anal gills not as long as the segment, pointed.

Costa Rica and Panama.

The larvæ live in the water in crab-holes. This peculiar *Culex* shows all the essential structures of *Deinocerites* in an incipient form. The adult antennæ are not elongated, and the larvæ do not show the head-pouches. It represents in *Culex* the departure-point of the origin of *Deinocerites*, and it is to be noted that the association with crab-holes is already established. Having separated *Deinocerites* as a genus, I can not place it here, where it should properly follow.

Section GNOPHODEOMYIA Theobald

CULEX (MELANOCONION) AIKENII (Aiken)

GNOPHODEOMYIA INORNATA Theobald (not *Culex inornatus* Williston, 1893), Journ. Econ. Biol., i, 21, 1905.

Gnophodeomyia inornata Theobald, Mon. Culic., iv, 252, 1905.

GNOPHODEOMYIA AIKENII Aiken, Brit. Guiana Med. Ann., 1906, 60, 1907.

Gnophodeomyia inornata Theobald, Mon. Culic., v, 250, 1910.

Gnophodeomyia inornata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 152, 1911.

CULEX OCOSSA Dyar and Knab, Ins. Ins. Mens., vii, 6, 1919.

CULEX (MELANOCONION) PANOCOSSA Dyar, Ins. Ins. Mens., xi, 120, 1923.

Culex (Gnophodeomyia) aikenii and *panocossa* Dyar, Ins. Ins. Mens., xi, 188, 1923.

Culex (Gnophodeomyia) aikenii Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 275 and 277, 1925.

Culex (Gnophodeomyia) aikenii Dyar, Ins. Ins. Mens., xiii, 21, 1925.

Culex (Melanoconion) aikenii Dyar, Ins. Ins. Mens., xiii, 168, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with flat black scales with a whitish reflection; a small area of narrow, curved, dark ones on the nape. Mesonotum brown, with dark brown, narrow, curved scales; pleuræ pale brown. Abdomen black; the sides with basal segmental faint pale luteous patches; venter pale luteous, somewhat black-shaded outwardly. Legs black with bronzy reflection, the femora whitish below. Wing-scales broad, only those outstanding within the cell spinose, outwardly on second to fourth vein quite broadly ovate.

Male—Coloration of the female. Palpi exceeding the proboscis by half the length of the last joint, black. Hypopygium (Plate LXXXIV, Fig. 292): Side-piece elliptical, convex outwardly; inner division of the lobe a long, slender column, five times as long as wide, bearing at its summit two moderate filaments hooked at tip, the inner slender, the outer stout; outer division of the lobe from the base of the inner at right angles, roundedly angled, a large long-stemmed leaf from the angle, the outer part a slender column, bearing a long filament. Clasper slender, a little enlarged at base, uniform, with broad, slightly subapical appendiculate spine. Tenth

sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites very small, elliptical, few-haired. Mesosomal plate stout, rather short, simple, pointed.

Larva (Plate LXXXIV, Fig. 292)—Head transverse, bulging at the sides. Antennæ long, a tuft at outer third, the part beyond of about the same diameter, but stained brown, the basal part white, spinulated; some spinules also on the outer part. Head-hairs upper in four, lower in three (detached, lower possibly single), anteantennal tuft multiple, all the hairs thick and densely spinulated. Skin spinulated. Lateral comb of the eighth segment of about eight very large, long spines, with a patch at their bases of small spines about two rows deep. Air-tube about five times as long as wide, tapering outwardly and very slightly curved forward at tip; pecten on basal third of some five large, sparse teeth with a few small ones preceding, followed by five paired hair-tufts, irregularly inserted, of delicate but multiple moderately long tufts of approximately equal length. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long hair with four very short hairs arising beyond its base on each side. Anal gills as long as the segment, slender, pointed.

Panama, Colombia, Venezuela, British Guiana, Surinam.

The larvæ are found among the roots of the floating water-plant *Pistia*, and are probably to be found wherever this plant occurs, though owing to the fact that the adults probably do not bite man, they are seldom taken unless bred. Major L. H. Dunn found specimens of both sexes coming to light on a river boat at night while tied to the bank. Dr. F. M. Root bred specimens at Maracay, Venezuela.

Section MELANOCONION Theobald

CULEX (MELANOCONION) ATRATUS Theobald

CULEX ATRATUS Theobald, Mon. Culic., ii, 55, 1901.
CULEX FALSIFICATOR Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 257, 1909.
Culex atratus and *falsificator* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 388 and 425, 1915.
Culex atratus and *falsificator* Dyar, Ins. Ins. Mens., vi, 103, 1918.
Culex (Melanoconion) atratus Dyar and Ludlow, Ins. Ins. Mens., ix, 47, 1921.
Culex (Melanoconion) atratus Dyar, Ins. Ins. Mens., xi, 187, 1923.
Culex (Melanoconion) atratus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 268, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection, some white ones on the side. Mesonotum dark brown, with narrow, curved, reddish brown scales; pleuræ brown. Abdomen black, the sides with basal segmental white patches; venter with the segments banded, white at base, black apically. Legs black with bronzy reflection, femora white below. Wing-scales linear, mixed with ovate ones outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by nearly the length of the last two joints, black. Wing-scales somewhat broader than in the female, narrowly ovate outwardly. Hypopygium (Plate LXXXIV, Fig. 293): Side-piece elliptical, convex outwardly; inner division of the lobe columnar, the small inner filament from its base, slender, degenerate, the outer from the tip, rather short and rod-like; outer division curved from the base of the inner, a broad ribbed leaf from its tip and two

setæ on the outer aspect. Clasper slender, uniform, the base a little enlarged, with minute terminal spine. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites small, elliptical, approximate, with many rather stiff setæ from tubercular bases. Mesosomal plate a stout, curved, simple blade.

Larva (Monograph, Plate 106, Fig. 356)—Head transverse, bulging on the sides; antennæ large, a tuft at outer third, the part beyond slender, basal part spinulated. Head-hairs, upper a small tuft of five, lower a long single hair. Lateral comb of the eighth segment of many small spines in a patch four rows deep. Air-tube long and slender, straight, a little flared at the base, about nine times as long as wide, the pecten reaching the basal third, followed by five short tufts, decreasing in number of hairs outwardly, but all of about equal length; a single hair and small two-haired tuft on the side. Skin pilose. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long and two short hairs on each side. Anal gills very small, not as long as the width of the segment.

Greater Antilles and Virgin Islands.

The larvæ occur in ground-pools. Original specimens from Dr. M. Grabham in Jamaica have been supplemented by specimens from Cuba from Mr. J. R. Taylor, from Haiti from Dr. E. Peterson, and from the Virgin Islands (St. Thomas) also from Dr. Peterson.

CULEX (MELANOCONION) ZETECI Dyar

CULEX (MELANOCONION) ZETECI Dyar, Ins. Ins. Mens., vi, 122, 1918.
Culex (Melanoconion) zeteci Dyar, Ins. Ins. Mens., xi, 188, 1923.
Culex (Melanoconion) zeteci Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 267, 1925.
Culex (Melanoconion) zeteci Dyar, Ins. Ins. Mens., xiii, 169, 1925.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Occiput with flat black scales that take a white reflection, often appearing white. Palpi exceeding the proboscis by the length of the last joint and half the preceding one. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ brown-spotted, coxæ pale. Abdomen black, the segments with more or less distinct basal white bands; venter faintly banded, the segments pale at base, faintly blackish at tips. Legs black with bronzy reflection, femora narrowly pale below, both femora and tibiæ faintly white-marked at apices. Wing-scales rather broadly ovate outwardly on second to fourth veins. Hypopygium (Plate LXXXV, Fig. 294): Side-piece elliptical, convex outwardly; inner division of the lobe shortly conical, bearing two long filaments, one broadly ligulate, the other narrow; outer division slenderly columnar, bearing a large leaf and two small setæ. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites small, elliptical, with rather numerous, short, rudimentary setæ. Mesosomal plate a simple curved rod, considerably inflated, but with horn-like tip.

Larva—Unknown.

Panama (Atlantic side).

CULEX (MELANOCONION) DUNNI Dyar

CULEX (MELANOCONION) DUNNI Dyar, Ins. Ins. Mens., vi, 123, 1918.
CULEX (MELANOCONION) ENSIFORMIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 176, 1920.
Culex (Melanoconion) dunni Dyar, Ins. Ins. Mens., xi, 188, 1923.
Culex (Melanoconion) dunni Dyar, Ins. Ins. Mens., xii, 183, 1924.
Culex (Melanoconion) dunni Evans, Ann. Trop. Med. and Par., xviii, 373, 1924.
Culex (Melanoconion) dunni and *ensiformis* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 267 and 272, 1925.
Culex (Melanoconion) dunni Dyar, Ins. Ins. Mens., xiii, 170, 1925.

Female—Proboscis moderate, swollen at the tip, black apically. Occiput with flat black scales that take a white reflection. Mesonotum dark brown with narrow, curved, brown scales; pleuræ brown above, below and coxæ green. Abdomen black, the segments with lateral basal white marks; venter banded, the segments whitish basally. Legs black with bronzy reflection, the femora white below; tips of femora and tibiæ narrowly whitish. Wing-scales narrow, narrowly ovate outwardly on second to fourth veins.

Male—Coloration of the female, the abdomen generally with basal segmental white bands; palpi exceeding the proboscis by nearly the length of the last two joints; wing-scales somewhat broader than in the female. Hypopygium (Plate LXXXV, Fig. 295): Side-piece elliptical, convex outwardly; inner division of the lobe a small pedicel bearing three small filaments and two setæ; outer division a long, slender column bearing a large leaf and four setæ; a leaf inserted between the outer division and apex. Clasper small and very slender, somewhat bulbous at base, uniform, with an appendiculate spine not quite apically inserted. Tenth sternites narrow, comb-shaped, with about ten flat, blunt teeth. Ninth tergites elliptical, moderate, conically pointed, with small setæ from tubercular bases. Mesosomal plate simple, very slightly inflated, but the tip sharp. The plate at the base of the side-piece is twice deeply incised, forming a club-shaped process, and at tip a curved blade-like one.

Larva (Plate LXXXV, Fig. 295)—Head transverse, bulging on the sides. Antennæ large, a tuft at the outer third, the part beyond not much more slender, spinulated, infuscated throughout. Head-hairs, upper a tuft of three or more, lower a single long hair, anteantennal tuft multiple. Lateral comb of the eighth segment with small scales in a narrow patch, about eight large ones posteriorly. Air-tube long and slender, eight to ten times the basal width, a little narrowed centrally; pecten reaching over the basal fourth, long and sparse, followed by five small paired tufts, the outer ones smaller, but all small and subequal. Anal segment longer than wide, ringed by the plate, the ventral brush posterior. Dorsal tuft a long hair and a long hair with three short ones arising beyond its base.

Panama, Colombia, Surinam, Brazil.

The larvæ occur in grass in the edges of lakes; also in *Pistia*.

CULEX (MELANOCONION) COMMEVYNENSIS Bonne-Wepster and Bonne

CULEX (MELANOCONION) COMMEVYNENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 176, 1920.
Culex (Melanoconion) commevynensis Dyar, Ins. Ins. Mens., xi, 188, 1923.
Culex (Melanoconion) commevynensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 271, 1925.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, brown. Palpi exceeding it by the length of the last two joints. Occiput with pale golden, narrow, curved scales, flat white scales on the sides. Mesonotum brown, with pale golden, narrow, curved scales on anterior half, brown ones posteriorly; pleuræ brown. Abdomen black with coppery reflection, the segments with basal white bands; venter banded, the segments whitish at bases. Legs dark brown with coppery reflection, the femora pale below, tips of femora and tibiæ pale. Wing-scales outwardly broadly ovate. Hypopygium (Plate LXXXV, Fig. 296): Side-piece elliptical, convex without; inner division of the lobe divided, the inner limb sessile, outer on a short pedicel, the inner with a seta, the outer with a short spine; outer division long columnar, with a large leaf and a seta; a large triangular ribbed leaf between the outer division and apex of side-piece. Clasper slender, somewhat enlarged at base, with appendiculate spine not quite apically inserted. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites elliptical, moderate, with fine setæ from tubercular bases. Mesosomal plate simple, thick, with pointed tip. The plate at base of side-piece has a long sword-shaped arm.

Larva—Unknown.

Surinam.

This species is not before me, being known only by the unique male type, bred from a ditch.

CULEX (MELANOCONION) RUFFINIS Dyar and Shannon

CULEX (MELANOCONION) RUFFINIS Dyar and Shannon, Ins. Ins. Mens., xii, 143, 1924.
CULEX (MELANOCONION) EXEDRUS Root, Am. Journ. Hyg., vii, 580, 1927.

Female—Vertex with a broad area of narrow scales, flat and whitish on the sides. Mesonotum very dark brown with dark brown, narrow, curved scales; pleuræ whitish, shaded with green, a deep black mark in the center. Abdomen black, with broad basal segmental white bands. Tarsi dark. Wing-scales narrow, ovate outwardly on second to fourth veins.

Male—Palpi exceeding the proboscis by nearly the length of the last joint, dark. Hypopygium (Plate LXXXV, Fig. 297): Side-piece elliptical, convex outwardly; inner division of the lobe divided, inner limb nearly sessile, outer on a rather long pedicel, each arm of inner division with a rather long pointed filament; a third filament just before the base, and a line of fine hairs; outer division slenderly columnar, with a large angular leaf; a rather small leaf between this and apex. Clasper small, slender, swollen at base, with appendiculate spine not quite apically inserted. Tenth sternites narrow, comb-shaped, with about six flat blunt teeth. Ninth tergites very small, elliptical, remote, with many very short setæ resembling spicules. Mesosomal plate thick, with pointed outcurved tip. The plate at base of side-piece is twice deeply incised, upper limb ensiform, lower club-shaped.

Larva—Head transverse, sides bulging; antennæ thick, a notch at outer third, the part beyond more slender; a large radiating tuft. Head-hairs upper in fours, rather short, lower single, long, central hairs fine, single, anteantennal tuft large, multiple. Lateral abdominal hairs in threes after the second segment. Lateral comb of the eighth segment a large patch of coarse similar spines, three rows deep centrally. Air-tube very long and straight, some ten times the basal width, which is a little flared; pecten

sparse, spine-like and open, the teeth faintly dentate on one side; four fine, short, but distinct paired hair-tufts beyond the pecten, two- or three-haired, the distal one single, the first three by the middle of the tube, the last at the outer fourth. Anal segment ringed by the plate, ventral brush posterior; dorsal tuft of a long hair and a long hair with three short branches at base on each side.

Panama, Venezuela (Porto Cabello), Brazil (Porto das Caixas).

Dr. Root found the species in Brazil, and has lately taken several specimens at Porto Cabello, Venezuela. Dr. D. P. Curry has sent me larvæ found in a sedgy swamp with *Mansonia* larvæ on the beach at Far Fan, near Balboa, Panama, December 18, 1927.

CULEX (MELANOCONION) SPISSIPES Theobald

MELANOCONION SPISSIPES Theobald, Mon. Culic., iii, 242, 1903.
CULEX FUR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 13, 1907.
Culex spissipes and *fur* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 312 and 314, 1915.
Culex spissipes Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 20, 1921.
Culex (Melanoconion) spissipes Dyar, Ins. Ins. Mens., xi, 70, 1923.
Culex (Melanoconion) spissipes Dyar, Ins. Ins. Mens., xi, 188, 1923.
Culex (Melanoconion) spissipes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 268, 1925.
Culex (Melanoconion) spissipes Dyar, Ins. Ins. Mens., xiii, 169, 1925.
Culex (Chœroporpa) spissepes Dyar, Ins. Ins. Mens., xiii, 214, 1925.

Female—Proboscis moderate, swollen slightly at tip, black. Occiput with narrow, curved, golden scales on the vertex, flat black and white ones on the sides. Mesonotum brown, with narrow, curved, golden scales on the anterior half, inclosing two oval patches of dark ones, dark brown scales posteriorly; pleuræ and coxæ brown. Abdomen black, the sides with basal segmental white spots; venter mostly pale, the posterior segments slightly blackish at their tips. Legs black, femora pale below, tips of femora and tibiæ whitish. Wing-scales quite broadly and densely ovate outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last two joints. Hypopygium (Plate LXXXV, Fig. 298): Side-piece elliptical, convex without; inner division of the lobe represented by four sessile filamentous setæ; outer division by a large, stemmed, sessile leaf and a seta; a spatulate ribbed leaf between this and apex. Clasper slender, swollen at base. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites small oval, oblique, with a number of rather long setæ from tubercular bases, leaving a clear margin. Mesosomal plate simple, somewhat swollen, curved, pointed. The plate at base of side-piece has an ensiform outer arm.

Larva—Unknown.

Panama, Colombia, Trinidad, Surinam.

I have no male; the description is taken from the Bonnes' book.

CULEX (MELANOCONION) LOTURUS Dyar

CULEX (MELANOCONION) LOTURUS Dyar, Ins. Ins. Mens., viii, 214, 1925.

Female—Proboscis moderate, not perceptibly swollen at the tip, black. Occiput black, with narrow, curved, pale golden scales, succeeded by flat white ones on the sides. Mesonotum brown with narrow, curved, dark

brown scales; pleuræ whitish, stained with brown. Legs dark brown, femora largely whitish; tips of femora and tibiæ whitish. Abdomen black, with basal segmental white bands widening on the sides; venter similarly white-banded. Wing-scales broadly ovate and dense outwardly on second to fourth veins.

Male—Coloration of the female. Palpi exceeding the proboscis by nearly the length of the last two joints, black with whitish marks at middle of long joint and base of penultimate. Hypopygium (Plate LXXXVI, Fig. 300): Side-piece elongate conical; inner division of the lobe conical-columnar, truncate, bearing a single rather short, blunt filament and a seta representing the inner limb; outer division slenderly columnar with a large leaf. Clasper slender, curved, bulbous at base, with appendiculate not quite terminal spine. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites small, ovate, joined by a bridge with few very small setæ from small tubercles. Mesosomal plate stout, simple, curved, scimetar-shaped.

Larva—Unknown.

Venezuela (Catatumbo River).

CULEX (MELANOCONION) AMERICANUS (Neveu-Lemaire)

Aëdeomyia americana Neveu-Lemaire, Arch. de Paras., vi, 5, 1902.
Aëdeomyia americana Theobald, Mon. Culic., iii, 306, 1903.
Aëdeomyia americana Blanchard, Les. Moust., 399, 405, 1905.
Micraëdes bisulcatus Coquillett, Proc. Ent. Soc. Wash., vii, 185, 1906.
Aëdeomyia americana Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 222, 1911.
Culex bisulcatus and ? Culex americana Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 306, 1915.
Culex bisulcatus and ? Culex americana Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 893, 1917.
Culex (Micraëdes) bisulcatus Dyar, Ins. Ins. Mens., vi, 102, 1918.
Culex (Micraëdes) bisulcatus Dyar, Ins. Ins. Mens., xi, 188, 1923.
Culex (Micraëdes) bisulcatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 275, 1925.

Female—Proboscis moderate, swollen at tip, black. Palpi over one-third the length of the proboscis. Occiput brown, with sparse narrow, curved, dark brown scales, those on the sides narrow and flat. Mesonotum brown, with sparse narrow, curved, blackish scales; pleuræ and coxæ pale brownish. Abdomen black with bronzy reflection, with lateral basal segmental whitish spots; venter pale. Legs black with bronzy reflection, femora pale below. Wing-scales narrow and hair-like, even outwardly not more than linear.

Male—Coloration of the female. Palpi over one-third as long as the proboscis, like the female. Hypopygium (Plate LXXXVI, Fig. 301): Side-piece elongate ovate; lobe central, the two divisions approximate and appressed; inner division cleft, inner limb double, with two setaform filaments, short, outer rather long, with a moderate pointed filament; outer division wider than long, with five setaform moderate filaments. Clasper rather long, slender, a little enlarged at base, with small appendiculate terminal spine. Tenth sternites with narrow edge, comb-shaped, with about twelve flat, blunt teeth. Ninth tergites rather large, separated, rounded, broadly conical, with few fine setæ (about four) from tubercular bases. Mesosomal plate small, simple, slightly curved and pointed.

Larva (Plate LXXXVI, Fig. 301)—Head nearly circular in outline; antennæ long, slender, a large tuft before the middle, the outer part

scarcely slenderer but without spinulate. Head-hairs all multiple (upper five, lower four). Lateral comb of the eighth segment of many large spines in a patch three rows deep. Air-tube long, widened on basal half, eight times as long as wide; pecten reaching the basal two-fifths, long outwardly, followed by three three-haired tufts, the outer only a little shorter; two two-haired lateral tufts, one within the pecten, the other beyond the outer tuft. Anal segment longer than wide, ringed by the plate, which has a row of very long spinules laterally posteriorly; dorsal tuft a long hair and three shorter hairs on each side; lateral hair single, situated low down near the ventral brush. Anal gills about as long as the segment, pointed.

Lesser Antilles, French Guiana.

Probably to be found throughout the south shore of the Caribbean Sea. The larvæ occur in the water in the leaf-bases of Bromeliaceæ. Specimens from the Greater Antilles show differences in the male hypopygium, and are separated in the following. Neveu-Lemaire's *Aëdeomyia americana* can be nothing else than this on account of the length of the female palpi which he mentions.

CULEX (MELANOCONION) ANTILLUM-MAGNORUM Dyar

CULEX (MELANOCONION) ANTILLUM-MAGNORUM Dyar, new species (here published).

Female—Proboscis moderate, swollen at tip, black. Palpi over one-third the length of proboscis. Occiput brown with sparse, narrow, curved, dark-brown scales. Mesonotum brown with narrow, curved, blackish scales; pleuræ and coxæ pale. Abdomen black with bronzy reflection, with lateral basal segmental whitish spots; venter pale. Legs black with bronzy reflection, femora pale below. Wing-scales narrow, hair-like.

Male—Coloration and palpi of the female. Hypopygium (Plate LXXXVII, Fig. 302): Side-piece elongate-ovate; lobe central, the two divisions approximate; inner division cleft, inner limb short, outer rather long, each with a moderate pointed filament; outer division as wide as long, with four setaform moderate filaments. Clasper rather long, slender, a little enlarged at base, with appendiculate terminal spine. Tenth sternites with narrow edge, comb-shaped, with about fifteen flat, blunt teeth. Ninth tergites small, separated, rounded conical, with very small setæ from tubercular bases.

Larva—Unknown.

Greater Antilles.

Types: Four males, No. 40778, U. S. Nat. Mus.; San Antonio de Los Baños, Cuba (J. H. Pazos, Nos. 416 and 786); Mayaguez, Porto Rico (W. V. Tower).

The larvæ I believe should be found in water in the leaf-bases of Bromeliaceæ, although all those found were in artificial receptacles.

Section ANŒDIOPORPA Dyar

CULEX (MELANOCONION) HOMŒOPAS Dyar and Ludlow

CULEX (MELANOCONION) HOMŒOPAS Dyar and Ludlow, Ins. Ins. Mens., ix, 46, 1921.
Culex (Melanoconion) homœopas Dyar, Proc. U. S. Nat. Mus., lxii, 14, 1922.
Culex (Aëdinus) homœopas Dyar, Ins. Ins. Mens., xi, 189, 1923.
Culex (Anœdioporpa) homœopas Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 265, 1925.

Female—Unknown.

Male—Proboscis moderate, not perceptibly swollen at the tip, black. Palpi exceeding proboscis by the length of the last joint and half the preceding one. Occiput with flat black scales with a white reflection. Mesonotum brown with narrow, curved, golden scales throughout; pleuræ heavily shaded with black, coxæ whitish. Abdomen black, the segments with whitish basal bands; venter, segments narrowly whitish at bases. Legs black with bronzy reflection, femora broadly whitish below; tips of femora and tibiæ whitish. Wing-scales narrow, outwardly on second to fourth veins narrowly ovate. Hypopygium (Plate LXXXVI, Fig. 299): Side-piece elongate-ovate, convex outwardly; inner division of the lobe furcate, inner limb short, outer rather long, each with a long undegenerate filament with T-shaped tip; outer division columnar, with five radiating filaments from its tip. Clasper thick, roundedly bent at right angles in the middle, the apex flattened and ridged, hirsute without. Tenth sternites narrow, comb-shaped, few-toothed. Ninth tergites rather large, elliptical, oblique, truncate at base, with many fine setæ from tubercular bases. Mesosomal plate large and thick, curved, ending in a sharp point, and a thorn-like branch at the middle.

Larva—Unknown.

Locality unknown.

A single male was taken at Jackson Barracks, Mississippi, probably blown ashore from a banana steamer from Nicaragua.

CULEX (MELANOCONION) CONSERVATOR Dyar and Knab

CULEX CONSERVATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 221, 1906.
Culex conservator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 308, 1915.
Culex (Isostomyia) conservator Dyar, Ins. Ins. Mens., vi, 103, 1918.
CULEX (ISOSTOMYIA) BIFOLIATUS Dyar, Ins. Ins. Mens., x, 94, 1922.
CULEX PAGANUS Evans, Ann. Trop. Med. and Par., xvii, 104, 1923.
Culex (Aëdinus) bifoliatus Dyar, Ins. Ins. Mens., xi, 189, 1923.
Culex (Aëdinus) conservator Dyar, Ins. Ins. Mens., xi, 189, 1923.
Culex (Anœdioporpa) conservator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 261, 1925.
Culex (Anœdioporpa) bifoliata and *paganus* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 263 and 265, 1925.
Culex (Melanoconion) bifoliatus Dyar, Ins. Ins. Mens., xiii, 169, 1925.
Culex (Melanoconion) bifoliatus Dyar, Ins. Ins. Mens., xiv, 113, 1926.

Female—Proboscis moderate, swollen at tip, black. Occiput with an area of narrow, curved, pale yellowish scales on the vertex, succeeded by flat black ones, and flat white ones on the side. Mesonotum rather light brown, with narrow, curved, bronzy brown scales; pleuræ and coxæ pale or green. Abdomen black with bronzy reflection, the sides with more or less distinct pale basal segmental spots; venter dusky, not distinctly banded. Legs black with bronzy reflection, the femora pale beneath. Wing-scales narrow, linear outwardly on second to fourth veins.

Male—Coloration of the female. The palpi are short as in the female. Hypopygium (Plate LXXXVI, Fig. 303): Side-piece elliptical, convex outwardly; an area of short coarse hairs preceding the inner division of the lobe, this long-columnar, with two short filaments at tip, the inner more

basally inserted than the outer; outer division remote, stoutly columnar, with three long and one short, flat filaments at tip; a stemmed leaf at base and one at mid-stem. Clasper rather stout, roundedly bent at right angles in the middle, the outer part flattened, grooved, hirsute without, with terminal horn and appendiculate spine. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites reduced, invisible. Mesosomal plate thin, spatulate, with a minute point. Parameres stout, normal, but with a hook inwardly and five outward ridges.

Larva (Plate LXXXVI, Fig. 303)—Head elliptical, somewhat wider than long. Antennæ long and slender, infuscated, spinulated, a tuft at the outer sixth, the part beyond more slender; head-hairs, upper in four, lower single, both long, darkly colored, anteantennal tuft multiple, shorter. Lateral comb of the eighth segment of many narrow spines in a triangular patch, the posterior ones twice as long as the anterior ones but not in a conspicuous row. Air-tube long, straight, flared at base, ten times as long as wide; pecten on basal fourth, few teeth, long and sharp, a single hair following and another single one toward apex, others perhaps detached (four shown in the monograph figure). Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a shorter long hair on each side. Anal gills about as long as the segment, pointed.

Panama, Venezuela, Surinam, Trinidad, Lesser Antilles.

The larvæ occur in the water in tree-holes.

I described *bifoliatus* under the impression that *conservator* had only an apical leaf on the outer division of the lobe of the male hypopygium. Though the old mounts are very poor, I think I can see the second leaf also. Anyway, everything else agrees. (Monograph, Plate 11, Fig. 75). The figure of the larva also agrees, except that the head-hairs are shown, upper detached, lower in four. The upper are in four, the lower single. The insertions are unusually close together, and the tuft of four was probably detached also. I imagine that the artist restored it in the wrong place. (Monograph, Plate 110, Fig. 372.)

CULEX (MELANOCONION) ORIGINATOR Gordon and Evans

CULEX ORIGINATOR Gordon and Evans, Ann. Trop. Med. and Par., xvi, 323, 1922.

Culex (Anœdioporpa) originator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 264, 1925.

Female—Proboscis moderate, swollen at the tip. Mesonotum dark gray with brown scales and black setæ. Occiput with pale brown scales, whitish at sides and eye-margins. Mesonotum with two bare stripes, faint posteriorly, and narrow posterior half-lines; pleuræ green. Abdomen dark brown, the sides with basal segmental whitish spots. Legs dark brown, femora pale beneath; hind tibiæ with a yellowish silvery line beneath. Wing-scales linear, narrowly ovate outwardly on the second to fourth veins, all dark.

Male—Coloration of the female. Palpi very short, as in the female. Hypopygium (Plate LXXXVII, Fig. 305): Inner division of the lobe of side-piece a long column with a row of hairs on the inner side; two rather short, hooked-tipped filaments, the inner inserted basad of the outer; outer division quadrate with short inner arm bearing long and short filaments, middle filaments narrow, small, outer group of two on a quadrate arm, one large and twice bent. Clasper bent, snout-shaped, the snout as long as the

basal part, serrate at tip with appendiculate spine. Tenth sternites narrow, comb-shaped, the tip with about eight flat, blunt teeth. Ninth tergites elongate, conical with a tuft of long hairs at tip. Mesosomal plate bifid.

Larva—Head-hairs, upper in four, lower single, anteantennal tuft in six. Air-tube very long and slender, nine times the basal width, pecten reaching one-fourth, followed by three single hairs before the middle of tube. (No complete description available.)

Brazil.

Larvæ in natural water-holes in tree-trunks.

CULEX (MELANOCONION) CORRIGANI Dyar and Knab

CULEX CORRIGANI Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 203, 1907.
CULEX CHALCOCORYSTES Martini, Ins. Ins. Mens., ii, 70, 1914.
Culex corrigani Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 386, 1915.
Culex (Micraëdes) chalcocorystes Dyar, Ins. Ins. Mens., vi, 102, 1918.
Culex (Micraëdes) corrigani Dyar, Ins. Ins. Mens., ix, 30, 1921.
Culex (Aëdinus) corrigani Dyar, Ins. Ins. Mens., xi, 189, 1923.
Culex (Anœdioporpa) corrigani Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 264, 1925.
Culex (Melanoconion) corrigani Dyar, Ins. Ins. Mens., xiii, 169, 1925.

Female—Proboscis moderate, swollen at the tip, black. Occiput with narrow, curved, pale scales and many long, upright forked ones. Mesonotum light brown with narrow, curved, brown scales; pleuræ and coxæ very pale with greenish tint. Abdomen black; venter dull yellowish or greenish. Legs black with bronzy reflection, femora narrowly pale below. Wing-scales narrow, some of the outer ones narrowly ovate.

Male—Coloration of the female. Palpi short as in the female. Hypopygium (Plate LXXXVII, Fig. 306): Side-piece elliptical, convex without; inner division of the lobe quadrate, with two short, pointed filaments at tip, the inner one slender, the outer stout; outer division low, with six radiating short setæ, two of them flattened and filamentous. Clasper thick, curved at right angles in the middle, smooth, ridged at the sides, with subterminal appendiculate spine. Tenth sternites with narrow edge, comb-shaped, with about six flat, blunt teeth. Ninth tergites rudimentary, a little ovate pad with three rudimentary setæ. Mesosomal plate thin, squarely expanded at tip. Parameres thick, produced into an outward-directed horn, with a curved hook-shaped branch at middle inwardly.

Larva (Plate LXXXVII, Fig. 306)—Head ovate, wider than long; antennæ long and slender, a tuft at the outer fourth, the part beyond more slender, spinulate; head-hairs, upper in four, lower single, both long, anteantennal tuft multiple, shorter. Lateral comb of the eighth segment of many long spines in a triangular patch. Air-tube long and slender, a little flared at the base, ten times as long as wide; pecten on the basal fourth or less, followed by four single hairs. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft two long hairs on each side. Anal gills shorter than the segment, pointed.

Panama.

The larvæ probably live in dark holes in the ground, possibly deserted crab-holes; all the specimens found have been in old cisterns, sometimes in large numbers.

CULEX (MELANOCONION) RESTRICTOR Dyar and Knab

CULEX RESTRICTOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 208, 1906.
CULEX CONSTERNATOR Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 59, 1908.
Culex restrictor Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 331, 1915.
Culex (Micraëdes) restrictor Dyar, Ins. Ins. Mens., vi, 102, 1918.
Culex (Aëdinus) restrictor Dyar, Ins. Ins. Mens., xi, 189, 1923.
Culex (Melanoconion) restrictor Dyar, Ins. Ins. Mens., xiii, 169, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput with narrow, curved, black scales. Mesonotum light brown with narrow, curved, dark brown sales; pleuræ and coxæ pale or green. Abdomen black, the sides with small basal segmental pale spots; venter largely pale. Legs black with bronzy reflection, the femora narrowly pale below. Wing-scales narrow, some of the outer ones linear only.

Male—Coloration of the female. Palpi very slender, exceeding the proboscis by not more than the length of the last joint. Hypopygium (Plate LXXXVII, Fig. 304): Side-piece elliptical convex without; inner division of the lobe columnar, stout, with two stout filaments with finely hooked tips, the inner inserted a little basad of the outer; outer division short, quadrate, with five stout filaments somewhat irregularly inserted. Clasper moderate, curved centrally at right angles, smooth, the sides ridged, with subterminal appendiculate spine. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites moderate, hemispherical, very remote, on a band, with about fifteen setæ from tubercular bases, leaving a clear margin. Mesosomal plate thin, flat, with rounded tip, a curved spine on the inner margin above the paramere, but not part of it.

Larva (Plate LXXXVII, Fig. 304)—Head elliptical, wider than long; antennæ slender, a tuft at outer third, the part beyond slender, finely spinulated. Head-hairs, upper in three, long, lower single, longer, anteantennal tuft multiple, shorter. Lateral comb of the eighth segment of many spines in a large triangular patch. Air-tube long and slender, flared at base, about eight times as long as wide; pecten on the basal fourth or less, followed by four single hairs and one lateral single hair. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft two long hairs on each side. Anal gills no longer than the width of the segment, small, pointed.

Mexico, Costa Rica.

The larvæ live in the water in tree-holes. This species, though having long palpi in the male, is closely related to *conservator* and *corrigani*, in which the male palpi are short.

CULEX (? MELANOCONION) LUTEOPLEURUS Theobald

MELANOCONION LUTEOPLEURUS Theobald, Mon. Culic., iii, 239, 1903.
Melanoconion luteopleurus Peryassú, Os Culic. do Braz., 240, 1908.
Melanoconion luteopleurus Theobald, Mon. Culic., v, 456, 1910.
Melanoconion luteopleurus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 208, 1911.

Female—Proboscis moderate, swollen apically, black. Occiput with narrow, curved, yellow scales, a few creamy flat ones on the sides. Mesonotum black with elongated narrow, curved, black scales; pleuræ bright yellowish. Abdomen black, with small basal segmental lateral white spots.

Legs black, the femora pale beneath. Wing-scales narrow (?) (Theobald does not state).

Male—Unknown.

Larva—Unknown.

Brazil (Pará).

Known only by the single female type. The contrasting pale sides of the thorax and presumably narrow wing-scales suggest that this may be a *Melanoconion,* section *Anœdioporpa*; but no certainty can be had until males are received from the original locality.

Subgenus MICROCULEX Theobald

CULEX (MICROCULEX) PLEURISTRIATUS Theobald

CULEX PLEURISTRIATUS Theobald, Mon. Culic., iii, 177, 1903.

Culex pleuristriatus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 183, 1911.

Culex pleuristriatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 437, 1915.

Culex (Microculex) pleuristriatus Dyar, Ins. Ins. Mens., vi, 109, 1918.

Culex (Microculex) pleuristriatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 247, 1925.

Culex (Microculex) pleuristriatus Root, Am. Journ. Hyg., vii, 581, 1927.

Female—Proboscis moderate, slightly swollen apically, black. Occiput with narrow curved scales and forked bristles, pale yellowish, with a central black patch and one on each side. Mesonotum brown, with narrow, curved, pale golden scales, and black ones in median and lateral patches; pleuræ pale with a transverse brown stripe. Abdomen black, with basal segmental narrow white bands, widening on the sides; venter rather faintly banded, the segments whitish at base. Legs black, femora pale beneath, femora and tibiæ with whitish apices; tarsal joints very narrowly ringed with white at their bases. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, with narrow white rings in the middle of the long joint and at bases of the last two. Hypopygium (Plate XC, Fig. 316): Side-piece narrowly elliptical, convex without; inner division of the lobe columnar, with two stout spines, the inner slenderer than the outer; a small patch of stiff setæ on base of division and before; outer division rounded quadrate, with six rather long filaments of different diameters. Clasper thick at base, the outer half rather sharply tapered, with appendiculate subapical spine. Tenth sternites narrow, comb-shaped, with about six flat, blunt teeth. Ninth tergites rudimentary. Mesosomal plate quadrately expanded, with long horn-like retrose tooth.

Larva (Plate XC, Fig. 316)—Head nearly circular in outline; antennæ slender, shorter than the head, uniform, a single hair near the middle; head-hairs, upper rather short, in four, lower double, long. Lateral comb of the eighth segment of many small scales in a patch three rows deep. Air-tube subfusiform, about five times as long as wide, the pecten on the basal third; five long tufts, four-haired, on posterior margin and a single lateral tuft. Abdominal tufts in dense bunches. Anal segment longer than wide, ringed by the plate, which is spinose posteriorly; dorsal tuft two long hairs on each side; lateral tuft in three, long; ventral brush sparse. Anal gills longer than the segment, rather broad and rounded at tips.

Brazil, British Guiana, Surinam, Trinidad, Venezuela.

The larvæ live in the water at the bases of the leaves of Bromeliaceæ. Dr. M. Núñez Tovar found this species in Venezuela.

CULEX (MICROCULEX) AZYMUS Dyar and Knab

CULEX AZYMUS Dyar and Knab, Proc. Ent. Soc. Wash., xix, 169, 1906.
Culex azymus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 451, 1915.
Culex (Microculex) azymus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 246, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with narrow, curved, whitish scales, some brown erect ones behind, a few flat white ones on the side. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ pale with a central brown mark. Abdomen black, the segments with basal lateral short bands of white scales, narrowly continued dorsally; venter mostly pale. Legs black with bronzy reflection, the femora largely pale below. Wing-scales narrow.

Male—Unknown.

Larva (Plate XCI, Fig. 319)—Head nearly circular in outline, the antennæ slender, uniform, with a single hair near the middle; upper head-hair in three, short, lower single, long. Lateral comb of the eighth segment of many spines in a patch three rows deep. Air-tube subfusiform, about five times as long as wide, the pecten on the basal third; four posterior tufts and a single hair, three-haired, the first within the pecten, diminishing in length outwardly. Anal segment as wide as long, ringed by the plate, ventral brush posterior; dorsal tuft two long hairs on each side; lateral tuft double, long. Anal gills more than twice as long as the segment, rather wide and tapered.

Trinidad.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ.

CULEX (MICROCULEX) GAIRUS Root

CULEX (MICROCULEX) GAIRUS Root, Am. Journ. Hyg., vii, 583, 1927.

Female—Unknown.

Male—Proboscis moderate, swollen at the tip, black. Palpi exceeding it by more than the length of the last joint, black, with small white rings at middle of long joint and bases of last two. Occiput black, with dark, narrow, curved scales, the upright forked ones whitish. Mesonotum dark brown, with narrow, curved scales, yellowish, but mottled with dark patches; pleuræ pale, with transverse central blackish band. (Abdomen missing). Legs black with bronzy reflection, femora pale below; tips of femora and tibiæ narrowly whitish, tarsal joints with very narrow white rings at their bases, distinct only on the hind legs. Hypopygium (Plate LXXXVIII, Fig. 307): Side-piece narrowly elliptical, convex without; inner division of the lobe stoutly columnar, with two stout spines, the inner slenderer and more basally inserted; a stout seta on the base, preceded by one or two others and some small ones; outer division small, subcircular, with five stout setæ from tubercular bases. Clasper rather broad, a little narrowed at base and tip, smooth, with subapical appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight long terminal teeth. Ninth tergites rudimentary, rounded, with a few small setæ. Mesosomal plate with two retrose teeth, the outer reversed from the apical angle, the inner in the usual position, shortly angled and beak-like.

Larva (Plate LXXXVIII, Fig. 307)—Head nearly circular in outline; antennæ small, slender, uniform, a single hair near the middle; upper head-hair in six, moderate, lower in two, longer, anteantennal tuft in six. Body rather densely long-spicular. Lateral comb of the eighth segment of many

spines in a triangular patch three rows deep. Air-tube subfusiform, about four times as long as wide; pecten not reaching the basal third; three posterior hair-tufts, long, three-haired, and a long four-haired one on the side. Anal segment about as wide as long, ringed by the plate, which has a patch of long spines on the side posteriorly; dorsal tuft two long hairs on each side; lateral tuft in four, long, ventral brush of few tufts. Abdominal hairs in large stellate tufts.

Brazil (Rio de Janeiro).

The larvæ were found in Bromeliaceæ. Described from Dr. Root's unique type.

CULEX (MICROCULEX) CONSOLATOR Dyar and Knab

CULEX CONSOLATOR Dyar and Knab, Proc. Biol. Soc. Wash., xix, 169, 1906.

Culex consolator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 439, 1915.

Culex (Microculex) consolator Dyar, Ins. Ins. Mens., vi, 109, 1918.

Culex (Microculex) consolator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 243, 1925.

CULEX (MICROCULEX) TRYCHNUS Root, Am. Journ. Hyg., vii, 585, 1927.

Female—Unknown.

Male—Proboscis moderate, swollen at tip, black. Palpi exceeding the proboscis by the length of the last joint, black, with small white rings at middle of long joint and bases of last two. Occiput black, with narrow, curved, whitish scales. Mesonotum pale brown with two darker lines and narrow, curved bronzy brown scales; pleuræ pale brown with two transverse brown lines. (Abdomen missing.) Legs black, the femora largely pale, except at tip above; tarsi with small white rings at the bases of the joints. Wing-scales narrow. Hypopygium (Plate LXXXVIII, Fig. 310): Side-piece narrowly elliptical, convex outwardly; inner division of the lobe columnar, with two stout spines, the inner a little more basally inserted; a single seta on the stem and two or three scattered before it; outer division at base of inner, shortly fan-shaped, with six coarse setæ from tubercular bases, one of them flattened ligulate. Clasper moderately wide, uniform, with subapical appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites rudimentary, rounded, with very small setæ from small tubercles. Mesosomal plate quadrately angled, the retrose tooth sharply horn-like.

Larva (Plate LXXXVIII, Fig. 310)—(Head missing.) Lateral comb of the eighth segment of many spines in a large patch. Air-tube very long and slender, fourteen times its basal width, a sparse open pecten on the basal fifth; a single hair at the middle and one subapically. Anal segment longer than wide, ringed by the plate, a patch of spines laterally posteriorly (hairs missing). Anal gills longer than the segment, slender.

Trinidad and Brazil (Soberbo).

The larvæ live in the water in the leaf-bases of Bromeliaceæ.

CULEX (MICROCULEX) OCELLATUS Theobald

CULEX OCELLATUS Theobald, Mon. Culic., iii, 222, 1903.

Culex ocellatus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 186, 1911.

Culex ocellatus Howard, Dyar, and Knab, Mosq. Cent. and No. Am. and W. I., iii, 446, 1915.

Culex (Microculex) ocellatus Dyar, Ins. Ins. Mens., vi, 110, 1918.

Culex (Microculex) ocellatus Bonne and Bonne-Wepster Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 257, 1925.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput with narrow, curved, whitish scales, behind with pale brown erect scales. Mesonotum pale brown with bronzy brown, narrow, curved scales; a black spot in the integument at base of wing with a pale curved border; pleuræ whitish above, brownish below, with narrow separating black line. Abdomen black, pale below. Legs black with bronzy reflection, the femora whitish below. Wing-scales narrow.

Male—Coloration of the female. Palpi as long as the proboscis, black. Hypopygium (Plate XCI, Fig. 318): Side-piece elliptical, gently convex without; inner division of the lobe shortly columnar, with a stout rather long spine and a very slender inner one; outer division represented by two setæ, the inner one long and stout; a few short setæ preceding both lobes laterally, but not a patch. Clasper wide on basal half, gradually narrowed outwardly, with small subterminal appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight teeth. Mesosomal plate widely roundedly expanded, the two teeth approximate within, the outer below the inner, which are small and angled.

Larva (Plate XCI, Fig. 318)—Head oval, wider than long; antennæ rather large, a tuft beyond the outer third, but the terminal part scarcely narrowed; upper head-hairs in three, lower single, anteantennal tuft in four, rather short. Lateral comb of the eighth segment of many spines in a patch. Air-tube long and slender, straight, about ten times the basal width; sparse open pecten on the basal fifth. Anal segment longer than wide, ventral brush posterior; dorsal tuft of two long hairs on each side. Anal gills longer than the segment, narrow.

Brazil, Surinam, Trinidad.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ.

CULEX (MICROCULEX) APHYLACTUS Root

CULEX (MICROCULEX) APHYLACTUS Root, Am. Journ. Hyg., vii, 584, 1927.

Female—Unknown.

Male—Unknown. Hypopygium (Plate LXXXVIII, Fig. 309): Side-piece narrowly elliptical, convex without; inner division of the lobe short; with two long, slender rods; a weak patch of short stoutish setæ preceding; outer division represented by five setæ in a circle, the two outermost closely paired. Clasper rather slender, uniform, with subapical appendiculate spine. Tenth sternites narrow, comb-shaped, with about six fine, blunt teeth. Ninth tergites rudimentary, narrow, with two or three minute setæ. Mesosomal plate doubly toothed, the apex long, rounded, the outer tooth coming close to the inner, outer horn-like, inner small, angled.

Larva—Unknown.

Brazil (Rio Soberbo).

Bred from larvæ in Bromeliaceæ, but no well-developed adult was obtained. Described from Dr. Root's unique slide.

CULEX (MICROCULEX) CHRYSELATUS Dyar and Knab

CULEX CHRYSELATUS Dyar and Knab, Ins. Ins. Mens., vii, 5, 1919.

Culex (Microculex) chryselatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 250, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput dark, with

narrow, curved, pale golden scales. Mesonotum with narrow, curved, pale golden scales on the anterior half, dark brown ones posteriorly, the integument pale under the golden area; pleuræ pale, with slight ventral brown mark. Abdomen black, with slight median and distinct lateral segmental white patches; venter largely dull yellowish. Legs black, the femora pale below; femora with subapical white speck and white tip; tibiæ with white tip, the hind pair also with basal and median white speck; tarsal joints white at their bases, rather broadly so on hind legs. Wing-scales narrow.

Male—Coloration of the female. Palpi slender, exceeding the proboscis by the length of the last joint, black, with small white rings at middle of long joint and base of last two. Hypopygium (Plate LXXXIX, Fig. 312): Side-piece elongate elliptical, slightly convex without; inner division of the lobe columnar, with two spines, the inner one more slender; a stout seta at base and a small scattered patch preceding; outer division represented by five small setæ in two groups, three inner and two outer. Clasper moderate, uniform, rather thick, and a little wider at base. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites rudimentary, invisible. Mesosomal plate narrowly sharply quadrate, the outer tooth long and reaching near base, the inner short and recurved, arising just below the apical point.

Larva (Plate LXXXIX, Fig. 312)—Head subcircular, wider than long; antennæ rather long, a tuft at outer third, the part beyond more slender. Upper head-hair multiple, lower single, anteantennal multiple. Lateral comb of the eighth segment of many scales in a patch, the posterior ones larger. Air-tube very long and slender, straight, twelve times as long as basal width, a sparse open pecten on the basal fourth, followed by three small tufts, the basal three-haired, the others two-haired. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft of two long hairs on each side. Anal gills much longer than the segment, slender.

Surinam.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ.

CULEX (MICROCULEX) HEDYS Root

CULEX (MICROCULEX) HEDYS Root, Am. Journ. Hyg., vii, 584, 1927.

Female—Unknown.

Male—Unknown. Hypopygium (Plate LXXXVIII, Fig. 308): Side-piece elliptical, convex without; inner division of the lobe shortly columnar, with two rather long spines with bent tips, the inner more slender; some small setæ on the base of the division, a spine beyond it, beside and beyond this a large patch of dense setæ; outer division remote, represented by four minute curved setæ from tubercles, arranged in a half circle. Clasper broad, uniform, a little tapered at base and tip, with long subapical appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight dense, flat teeth. Ninth tergites long, finger-shaped, slender, remote, with a few scattered small setæ. Mesosomal plate high, qudrately widened, with long inner retrose tooth.

Larva—Unknown.

Brazil (Angra dos Reis).

The larvæ live in the water in the leaf-bases of Bromeliaceæ. Described from Dr. Root's unique slide.

CULEX (MICROCULEX) NEGLECTUS Lutz

CULEX NEGLECTUS Lutz in Bourroul, Mosq. do Bras., 21, 1904.
Culex neglectus Theobald, Mon. Culic., iv, 459, 1907.
Culex neglectus Peryassú, Os Mosq. do Braz., 212, 1908.
Culex neglectus Theobald, Mon. Culic., v, 390, 1910.
Culex neglectus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 181, 1911.
Culex (Microculex) neglectus Dyar, Ins. Ins. Mens., vi, 100, 1918.
Culex (Microculex) neglectus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 245, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput brown, with narrow curved whitish scales, flat ones on the sides and many long black bristles. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ pale, with a dark brown band centrally. Abdomen black, the venter largely pale grayish. Legs black with bronzy reflection, the femora pale below. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint, black. Hypopygium (Plate XCI, Fig. 320): Side-piece narrowly elliptical, gently convex outwardly; inner division of the lobe shortly and stoutly prominent, with two long spines, the inner more slender; a group of stiff setæ on the base and before, running out along beside the outer division, which is represented by a little leaf and a spine; a spine between the lobes. Clasper narrow (in side view), broad, uniform, a little narrowed at base and tip (face view), with subapical appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight flat, blunt teeth. Ninth tergites rudimentary. Mesosomal plate highly and narrowly produced, with long inner retrose spine.

Larva—Unknown.

Brazil (Cantareina).

The larvæ doubtless occur in the leaf-bases of Bromeliaceæ. Described from two authentic specimens sent by Dr. A. Lutz 20 years ago.

CULEX (MICROCULEX) INIMITABILIS Dyar and Knab

CULEX INIMITABILIS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 221, 1906.
Culex inimitabilis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 449, 1915.
Culex (Microculex) inimitabilis Dyar, Ins Ins. Mens., xi, 110, 1918.
Culex (Microculex) inimitabilis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 252, 1925.
CULEX (MICROCULEX) MICROPHYLLUS Root, Am. Journ. Hyg., vii, 586, 1927.

Female—Proboscis moderate, swollen at tip, black. Occiput dark, with narrow, curved, whitish scales, flat whitish ones on the sides. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ pale with a transverse dark brown stripe. Abdomen black, the segments with basal white bands; venter largely whitish. Legs black with bronzy reflection, the femora pale beneath. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint, black. Hypopygium (Plate LXXXIX, Fig. 311): Side-piece elliptical, gently convex without; inner division of the lobe stoutly columnar, with two rather long spines, the inner slightly more slender; a rather dense group of short setæ surrounding and preceding it; one or two of them following it; outer division represented by a seta and a stemmed leaf from a slightly elevated base; a second elevation bears two setæ. Clasper broad, smooth with appendiculate subterminal spine. Tenth

sternites comb-shaped, narrow, with about six fine, blunt teeth. Ninth tergites irregular angular prominences bearing a few minute setæ. Mesosomal plate highly quadrate with an inner angle, the retrose tooth doubly angled and pointed (in one slide).

Larva (Plate LXXXIX, Fig. 311)—(Head missing.) Lateral comb of the eighth segment of many scales in a patch. Air-tube long and straight, ten times the basal width; pecten of few coarse teeth on the basal sixth; a single median hair. Anal segment longer than wide, ringed by the plate; dorsal tuft two long hairs on each side.

Trinidad, Venezuela, Surinam, Brazil.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ, both epiphytic and saxicolous. Dr. Root's *microphyllus* seemed to me at first to be distinct; but further study has made me doubtful of its value. Dr. M. Núñez Tovar took the species in Venezuela.

CULEX (MICROCULEX) DAUMASTOCAMPA Dyar and Knab

CULEX DAUMASTOCAMPA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 58, 1908.
Culex daumastocampa Howard, Dyar, and Knab, Mosq. of No. and Cent. Am. and W. I., iii, 435, 1915.
Culex (Microculex) daumastocampa Dyar, Ins. Ins. Mens., vi, 109, 1918.
Culex (Microculex) daumastocampa Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 245, 1925.
Culex (Microculex) daumastocampa Dyar, Ins. Ins. Mens., xiii, 177, 1925.

Female—Proboscis rather long, scarcely swollen at tip, black. Occiput brown, with narrow, curved, whitish scales, flat ones on the sides. Mesonotum brown, the anterior angles pale, with narrow, curved, bronzy brown scales, whitish ones over the anterior angles, pleuræ pale, with a brown transverse central band. Abdomen black with bronzy reflection, venter whitish. Legs black with bronzy reflection, femora largely pale; hind tibiæ whitish at apex and a minute white ring at base of first hind tarsal joint, slightly indicated also on second and third. Wing-scales narrow.

Male—Coloration of the female. Palpi not exceeding the proboscis, black. Hypopygium (Plate XCI, Fig. 317): Side-piece elongate elliptical, gently convex without; inner division of the lobe stout, with two spines, the inner more slender and more basally inserted, with five or six stiff hairs on the stem and preceding; a row of six hairs following, the outer five representing the outer division, in a row on a low eminence. Clasper rather narrow, uniform, with nearly terminal appendiculate spine. Tenth sternites narrow, comb-shaped, with about eight fine, blunt teeth. Ninth tergites rudimentary. Mesosomal plate quadrately angled, not produced, with apical point and long retrose tooth.

Larva (Plate XCI, Fig. 317)—Head rather angularly rounded, wider than long; antennæ stout, rather large, a tuft at outer third, the part beyond scarcely more slender; upper head-hair in four, lower single, both long, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a patch, the posterior ones large. Air-tube long and slender, flared at base, about seven times as long as basal width; pecten on the basal third of long open spines, followed by four tufts, all five-haired, approximate on the outer half of the tube, decreasing somewhat in length outwardly. Anal segment longer than wide, ringed by the plate; ventral brush posterior;

dorsal tuft of two long hairs on each side; lateral tuft triple, minute. Anal gills as long as width of segment, slender, pointed.

Panama.

The larvæ live in the water in the bases of the leaves of Bromeliaceæ.

CULEX (MICROCULEX) REJECTOR Dyar and Knab

CULEX REJECTOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 221, 1906.
Culex rejector Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 441, 1915.
Culex (Microculex) rejector Dyar, Ins. Ins. Mens., vi, 109, 1918.
Culex (Microculex) rejector Bonne and Bonne-Wepster, Mosq. od Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 245, 1925.

Female—Proboscis moderate, slightly swollen at the tip, black. Occiput dark, with narrow, curved, white scales, which become broad and flat on the sides. Mesonotum dark brown, with narrow, curved, bright bronzy brown scales over the disk, the anterior angles somewhat broadly with white scales; pleuræ pale or greenish with a brown bar across the middle and at top. Abdomen black, the segments with basal white bands; venter dull whitish. Legs black, femora pale below, all the tarsal joints narrowly white-ringed at bases. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint, black. Hypopygium (Plate XC, Fig. 315): Side-piece narrowly elliptical, gently convex without; inner division of the lobe at center of side-piece, stoutly elevated, bearing two long spines, the inner one slender; a patch of short setæ at base and before, a few beyond, one of these stout; outer division represented by three setæ from tubercles. Clasper broad from flat view, narrowed a little at base and tip, with subterminal appendiculate spine. Tenth sternites narrow, comb-shaped, with about ten fine, blunt teeth. Ninth tergites rudimentary. Mesosomal plate quadrately sharply angled, the retrose tooth near apex.

Larva (Plate XC, Fig. 315)—Head elliptical, wider than long; antennæ long, the tuft beyond the outer third, the part beyond scarcely more slender; head-hairs, upper in five, rather long, lower single, not much longer, ante-antennal tuft multiple. Lateral comb of the eighth segment of many spines in a patch, the basal ones smaller. Air-tube long and slender, straight, about eight times the basal width, a sparse open pecten on basal third, followed by five hair-tufts of moderate length, the basal three-haired, rest double, apical single; a single lateral hair outwardly before the apical one. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft of two long hairs on each side; lateral hair single, minute. Anal gills as long as the segment, slender, tapered.

Mexico (Córdoba).

The larvæ live in the water in the bases of the leaves of Bromeliaceæ.

CULEX (MICROCULEX) JENNINGSI Dyar and Knab

CULEX JENNINGSI Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 204, 1907.
Culex jenningsi var. GAUDEATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 204, 1907.
Culex jenningsi Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 443, 1915.
Culex (Microculex) jenningsi Dyar, Ins. Ins. Mens., vi, 109, 1918.
Culex (Microculex) jenningsi Dyar, Ins. Ins. Mens., xiii, 177, 1925.
Culex (Microculex) jenningsi Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 244, 1925.

Female—Proboscis moderate, swollen at tip, black. Occiput blackish with narrow, curved, whitish scales, flat whitish ones on the sides. Mesonotum brown, with narrow, curved, bronzy brown scales, either uniform or with a band of white scales along the sides with a projection in the middle and a border around antescutellar space; pleuræ pale with a blackish spotted band. Abdomen black, segments with dorsal white spots or basal bands; venter largely pale. Legs black with bronzy reflection, femora and tibiæ whitish at tips, all the tarsal joints narrowly white-ringed at their bases. Wing-scales narrow.

Male—Coloration of the female. Palpi scarcely exceeding the proboscis, black. Hypopygium (Plate XC, Fig. 314): Side-piece narrowly elliptical, gently convex without; inner margin twice excavated, the inner division of the lobe at the joining of the excavations, long-columnar, bearing two spines with bent tips, the inner more slender; a row of short, dense, curved setæ from prominent tubercles on the outer half of the outer excavation. Clasper rather broad, uniform, with appendiculate subterminal spine. Tenth sternites narrow, comb-shaped, with about ten fine, flat teeth. Ninth tergites rudimentary. Mesosomal plate angularly quadrate, with a long retrose tooth reaching base.

Larva (Plate XC, Fig. 314)—Head elliptical, wider than long; antennæ slender, a tuft at the outer fourth, the part beyond slightly more slender; upper head-hair in four, lower single, both long, anteantennal tuft multiple, short. Lateral comb of the eighth segment of many spines in a patch. Air-tube long and slender, straight, somewhat flared at base, about twelve times the basal width, pecten on the basal fifth, sparse and open, followed by three minute tufts or single hairs. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft two long hairs on each side. Anal gills about as long as the segment, tapered.

Panama.

The larvæ live in the water in the bases of the leaves of Bromeliaceæ.

CULEX (MICROCULEX) IMITATOR Theobald

CULEX IMITATOR Theobald, Mon. Culic., iii, 175, 1903.
CULEX DAUMASTURUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 207, 1906.
CULEX VECTOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 207, 1906.
MICROCULEX ARGENTEOUMBROSUS Theobald, Mon. Cuilc., iv, 461, 1907.
Microculex argenteoumbrosus and *Culex imitator,* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 169 and 188, 1911.
Culex imitator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 430, 1915.
Culex (Microculex) imitator Dyar, Ins. Ins. Mens., vi, 110, 1918.
Culex (Microculex) imitator Dyar, Ins. Ins. Mens., xi, 71, 1923.
MICROCULEX MARAJOENSIS Peryassú, A Folha Med., iv, 76, 1923.
Culex (Microculex) imitator Dyar, Ins. Ins. Mens., xii, 183, 1924.
Culex (Microculex) imitator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 254, 1925.
Culex (Microculex) imitator Dyar, Ins. Ins. Mens., xiii, 177, 1925.
Culex (Microculex) imitator Root, Am. Journ. Hyg., vii, 582, 1927.

Female—Proboscis moderate, more or less swollen at tip, black. Occiput blackish, with narrow, curved, whitish scales, some flat black ones below and white ones below these. Mesonotum dark brown, with narrow, curved scales, dark brown in the middle, frosty whitish along the sides and in a mesial projection; pleuræ pale with a brown stripe across the middle.

Abdomen black with basal segmental white bands; venter largely whitish. Legs black with bronzy reflection, femora and tibiæ whitish at tips; tarsal joints rather narrowly white-ringed at their bases. Wing-scales narrow.

Male—Coloration as in the female. Palpi as long as the proboscis, black, with white rings at the middle of the long joint and bases of the last two. Tarsal white rings wider than in the female, the last hind tarsal being more than half white. Hypopygium (Plate LXXXIX, Fig. 313): Side-piece elongate elliptical, gently convex without; inner margin doubly excavated, the inner division of the lobe at the junction of the excavations stoutly columnar, bearing two stout spines with curved tips, the inner slenderer; a row of small setæ from conspicuous tubercles involving the base of the lobe and the margin of the outer excavation; a spine beyond the lobe. Clasper moderately broad, uniform, with appendiculate terminal spine. Tenth sternites narrow, comb-shaped, with about ten fine, flat teeth. Ninth tergites rudimentary. Mesosomal plate broadly quadrate, with long retrose tooth reaching base.

Larva (Plate LXXXIX, Fig. 313)—Head rounded, wider than long; antennæ long, with a tuft at outer fourth, the part beyond slightly more slender; head-hairs upper in four, lower single, both long. Lateral comb of the eighth segment of many spines in a patch. Air-tube long and slender, straight, slightly flared at base, ten to twelve times its basal width, a sparse open pecten on basal fifth, followed by four tufts and a lateral one close to the fourth, or three by the absence of the last tuft, all short and generally two-haired, though sometimes five-haired or single; in some specimens the tube has a subapical swelling. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft two long hairs on each side; a minute lateral tuft. Anal gills as long as the segment, tapered.

Panama, Colombia, Venezuela, Trinidad, British Guiana, Surinam, Brazil.

The larvæ live in the water in the leaf-bases of Bromeliaceæ.

Subgenus PHALANGOMYIA Dyar and Knab

CULEX (PHALANGOMYIA) ARTICULARIS Philippi

CULEX ARTICULARIS Philippi, Verh. zool.-bot. Ges. Wien, xv, 596, 1865.
Culex articularis Theobald, Mon. Culic., v, 400, 1910.
Culex articularis Dyar, Ins. Ins. Mens., xii, 128, 1924.

Female—Proboscis moderate, somewhat swollen at tip, black. Occiput with whitish scales. Mesonotum brown, with reddish brown scales, two dark brown lines and a narrow median one between, and large posterior brown patches; pleuræ dark brown with patches of whitish scales. Abdomen black, the segments with basal white bands. Legs black, tips of femora and tibiæ brownish white. Wing-scales narrow, dark.

Male—Coloration of the female. Palpi very slender and few-haired, exceeding the proboscis by nearly the length of the last joint, black, with white spots at the bases of the last two joints on one side. Hypopygium (Plate XCII, Fig. 323): Side-piece stout, roundedly tapered to narrow tip; a groove from base to tip on the inner side incloses the lobe, which is divided; outer part cone-shaped, bearing a narrow, curved leaf and filament with recurved outer spine; inner part with three rods, the middle one of which is sinuate and preceded by a tuft of fine hairs. Clasper thick, narrowed outwardly, flattened, and ridged, with small terminal spines. Tenth sternites large, with long recurved basal arm, the tip tufted with spines, the outer ones stiff and thorn-shaped. Ninth tergites undeveloped; a pair

of weak lobes on the tip of eighth segment represent them. Mesosomal plate stoutly horn-like, furcate.

Larva—Unknown.

Chile and Argentina.

Described from Corral (Valdivia); found by Edwards and Shannon at several localities around Lake Nahnel Huapi, Argentina, and Lake Guiterrez, both Chilean and Argentine sides, the larvæ in a shallow well. The hypopygium is intermediate between *Culex* proper and *Phalangomyia*, showing the origin of this peculiar structure.

CULEX (PHALANGOMYIA) DEBILIS Dyar and Knab

PHALANGOMYIA DEBILIS Dyar and Knab, Ins. Ins. Mens., ii, 58, 1914.
Culex (Phalangomyia) debilis Dyar, Ins. Ins. Mens., vi, 93, 1918.
Culex (Phalangomyia) debilis Dyar, Ins. Ins. Mens., xiv, 42, 1926.

Female—Proboscis long, uniform, blackish outwardly, paler toward base. Occiput covered with narrow, curved, golden whitish scales, becoming flat ones on the sides. Mesonotum brown, with narrow, curved, golden whitish scales, arranged more or less in lines; pleuræ pale brown. Abdomen black, the segments with broad (half the segment) yellowish white basal bands; venter mostly pale. Legs dark brown, the femora and tibiæ more distinctly yellowish white at tips. Wing-scales narrow.

Male—Coloration of the female. Palpi slender, brown, exceeding the proboscis, very sparsely haired. Hypopygium (Plate XCII, Fig. 321): Side-piece stoutly conical, flat within; lobe detached, inserted in a hollow of the side-piece; outwardly a flat arm bearing many stiff short setæ; inwardly columnar, with two spines, the inner shorter than the outer; at tip of side-piece a thickened projection gives rise to a clubbed pointed appendage and a long serrate leaf. A row of long hairs on outside of tip. Clasper thick, roundedly bent at right angles beyond the middle, narrowed, with terminal horn and appendiculate spine. Tenth sternites broadly roundedly trigonate, with outer flat reversed appendage, the tip tufted with sharp uniform spines. Ninth tergites undeveloped. Mesosomal plate bottle-shaped, with three outwardly directed spines at tip. Parameres and basal plates stout, distinct.

Larva (Plate XCIII, Fig. 321)—The larvæ figured are not positively associated with the adult. They were given me by Mr. F. W. Edwards, taken in Llai-Llai, Chile, by himself.

Peru (Metucana).

CULEX (PHALANGOMYIA) ESCOMELI Brèthes

CULEX ESCOMELI Brèthes, Rev. Chil. Hist. Nat., xxiv, 41, 1920, (fig.).
Culex (?Phalangomyia) escomeli Dyar, Ins. Ins. Mens., xiv, 42, 1926.

Female—Proboscis moderate, reddish at base, blackish on terminal half. Occiput with white scales, the erect scales also mostly white. Mesonotum reddish brown with narrow, curved scales, golden yellow, with three somewhat darker lines. Abdomen bluish black, with segmental basal white bands occupying the halves of the segments. Legs dark, femora pale. Wing-scales dark.

Male—Coloration of the female. Palpi exceeding the proboscis by two-thirds the length of the last joint. Hypopygium (Plate XCII, Fig. 322): Side-piece stoutly conical; lobe divided into two portions, the outer bearing a stout T-shaped structure and a long, serrated filament; inner part partly

divided off, with an inner round knob bearing four stout rods, one of them angularly bent at tip; outer part with dense spine-like hairs. Clasper stout, with T-shaped tip. Tenth sternites roundedly enlarged, the tip tufted with spines.

Larva—Unknown.

Peru (Arequipa).

This species is not before me.

CULEX (PHALANGOMYIA) APICINUS Philippi

CULEX APICINUS Philippi, Verh. zool.-bot. Ges. Wien, xv, 596, 1865.
Culex apicinus Theobald, Mon. Culic., v, 399, 1910.
Aëdes ? apicinus Dyar, Ins. Ins. Mens., xii, 130, 1924.
Culex (Phalangomyia) articulatus Dyar (not *articularis* Philippi), Ins. Ins. Mens., xiv, 42, 1926.

Female—Proboscis rather long, uniform, black. Occiput black, with narrow, curved, whitish scales, some stained with brown on each side. Mesonotum dark brown, with narrow, curved, brown and pale yellowish scales, the latter forming a design of two central lines and a border around the blackish posterior half-lines; pleuræ pale brown, spotted. Abdomen black, the segments with broad segmental white bands; venter largely pale, but with indistinct apical segmental blackish shades. Legs blackish, the femora pale below; joints from femora outward marked by yellowish white rings, becoming small and indistinct on the tarsi. Wing-scales narrow.

Male—Coloration of the female. Palpi long and slender, blackish, very sparsely hairy. Hypopygium (Plate XCII, Fig. 324): Side-piece parallel sided, the tip conical; lobe broadly elevated, the margin of side-piece very slightly hollowed, the lobe roundedly margined below, with a row of flat spines with bent tips; a columnar structure above, bearing three long spines, the inner two long and hooked; subapically a thickened arm bears a trilobed clubbed structure, and at its base a large stemmed leaf. Clasper narrow, bent before the middle, the tip ridged, narrow, with a terminal horn and appendiculate spine. Tenth sternites roundedly trigonate, with a scale-like outer reversed branch; tip tufted with fine equal spines. Mesosomal plate triangular, three teeth at tip and a long tooth from base. Parameres and basal plates stout and distinct.

Larva—Unknown.

Chile.

Described from Santiago. Specimens before me from Perales (Valparaiso), in the same region.

Subgenus CULEX Linnæus

Section TRANSCULICIA Dyar

CULEX (CULEX) BAHAMENSIS Dyar and Knab

CULEX BAHAMENSIS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 210, 1906.
Culex bahamensis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 300, 1915.
Culex bahamensis Dyar and Knab, Ins. Ins. Mens., iii, 114, 1915.
CULEX (TRANSCULICIA) ELEUTHERA Dyar, Ins. Ins. Mens., v, 184, 1917.
Culex (Transculicia) eleuthera Dyar, Ins. Ins. Mens., vi, 100, 1918.
CULEX (TRANSCULICIA) PETERSONI Dyar, Ins. Ins. Mens., viii, 27, 1920.
Culex (Transculicia) bahamensis Dyar, Ins. Ins. Mens., viii, 29, 1920.
Culex (Transculicia) bahamensis and *petersoni* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 190, 1925.

Female—Proboscis moderate, uniform, black with a broad whitish central ring. Occiput dark, with narrow, curved, pale scales and flat white ones on the sides. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ pale, with brown spots. Abdomen black with basal segmental white bands; venter pale, with or without median black segmental spots. Legs black, femora pale below, hind tibiæ with a white line within; tarsal joints very narrowly ringed with white, the rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, ringed with white at middle of long joint and at bases of last two. Hypopygium (Plate XCIII, Fig. 325): Side-piece rounded conical; lobe subbasal, thick, quadrate, bearing two very short stout spines with bent tips; a patch of setæ on the stem, one at its base and one medianly outwardly on the side-piece. Clasper roundedly bent beyond base, smooth, tapering to a truncate tip. Tenth sternites weak, spined all over the head, the spines subequal; basal process long, curved. Ninth tergites rudimentary. Parameres thick, curved, multilaminate and denticulate. Mesosomal plate thin, short, with quadrate apical point, a long tooth from its base much exceeding it.

Larva (Plate XCIII, Fig. 325)—Head transverse, bulging at the sides; antennæ long, a tuft at the outer third, the part beyond more slender, base spinulated; head-hairs all multiple. Lateral comb of the eighth segment of many small scales in a patch. Air-tube rather stout, six times as wide as long, the pecten nearly to the middle, sparse outwardly; seven large multiple tufts on the posterior margin, the two basal ones within the pecten. Anal segment somewhat longer than wide, ringed by the plate, though the chitin is weak ventrally; ventral brush on posterior half of segment; dorsal tuft a long hair and six-haired brush on each side; a small double lateral hair. Anal gills only two, short, thick.

Bahamas and Virgin Islands.

The larvæ live in small ground-pools of marshy nature. This species seems addicted to the smaller islands of the Antilles, but has not been taken in the Lesser Antilles proper, which have a continental fauna. The species has affinities with *Deinocerites* and with the section *Tinolestes* of the subgenus *Melanoconion* of *Culex*. Lately Mr. W. H. W. Komp has found what is apparently this species in Haiti, "breeding in countless millions in a brackish lagoon, possibly three-quarters of a mile long and a quarter wide, fairly shallow (about knee-deep) and full of a kind of eel-grass, attached to the bottom and just floating at the surface." Male adults have not yet been obtained for positive identification.

Section CACOCULEX Dyar

CULEX (CULEX) HABILITATOR Dyar and Knab

CULEX HABILITATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 212, 1906.

CULEX EREMITA and *habilitator* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 261 and 262, 1915.

Culex (Cacoculex) habilitator Dyar, Ins. Ins. Mens., vi, 10, 1918.

Culex (Cacoculex) habilitator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 189, 1925.

Female—Proboscis moderate, black, a broad, pale area centrally beneath, which forms a very narrow or obsolete white ring on the upper side at outer third. Occiput black, with narrow, curved, bronzy brown scales. Meso-

notum brown, with narrow, curved, red-brown scales, paler about antescutellar area; pleuræ pale. Abdomen black with basal segmental white bands widening at the sides; venter largely pale. Legs black, femora white below; tibiæ white at tips; tarsal joints with narrow white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, the last two joints hairy. Hypopygium (Plate XCIII, Fig. 326): Side-piece conical, the tip narrowed and curved; lobe subapical, narrow, columnar, bearing a long, stout rod and a narrow one adjoining. Clasper curved, thick at base, attenuated apically, with subapical appendiculate spine. Tenth sternites stout, tufted with fine spines. Ninth tergites two small groups of setæ. Mesosomal plate broad, thin, denticulate on the edge, with a very long tooth from the base, twice as long as the plate. Parameres and basal plates normal.

Larva (Plate XCIII, Fig. 326)—Head wider than long, bulging at the sides; antennæ long, a tuft at outer third, the part beyond more slender, basal part spinulated; head-hairs, upper in four, lower in three, both long, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a triangular patch. Air-tube long, straight, about eight times as long as wide, pecten reaching beyond the basal fourth, followed by four hair-tufts, three- and two-haired, shorter outwardly, the subapical one moved laterad out of line. Anal segment longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side; a minute single lateral hair.

Santo Domingo and the Virgin Islands.

The larvæ occur in ground-pools near the coast, pot-holes, and fresh-water crab-holes. No specimens have been received from other islands of the Antilles. Mr. A. Busck found them in Santo Domingo in 1905, and Dr. E. Peterson found them on St. John, St. Thomas, and other places in the Virgin Islands in 1920.

CULEX (CULEX) MARACAYENSIS Evans

CULEX MARACAYENSIS Evans, Ann. Trop. Med. and Par., xvii, 102, 1923.
CULEX (CULEX) AGLISCHRUS Dyar, Ins. Ins. Mens., xii, 121, 1924.
Culex (Culex) maracayensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 234, 1925.
Culex aglischrus Dyar, Ins. Ins. Mens., xiii, 21, 1925.
Culex aglischrus Dyar, Ins. Ins. Mens., xiii, 213, 1925.

Female—Proboscis moderate, uniform, black with a broad white median ring, narrow dorsally. Occiput brown, with narrow, curved, whitish scales, flat white ones on the sides and many dark, erect forked bristles. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ pale. Abdomen black, the segments with narrow white basal bands; venter largely pale. Legs black, the femora pale below and with white tips; tarsal joints with white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black with slight whitish rings on long joint and at bases of last two. Hypopygium (Plate XCVII, Fig. 338): Side-piece conical, with a very large basal excavation, from the apex of which arises the small lobe, bearing two long rods with hooked tips and a third short one. Clasper stout at base, very narrow at tip, with appendiculate subterminal spine. Tenth sternites weak, with very short uniform

spines, the basal arm long and recurved nearly to tip of sternite. Ninth tergites undeveloped. Parameres scale-shaped, normal. Mesosomal plate large, with thumb-shaped lower limb, denticulate upper limb, mass of central teeth and hornlike tooth from base which much exceeds the other parts.

Larva (Plate XCVII, Fig. 338)—Head wider than long, bulging at the sides; antennæ long, a tuft at the outer third, the part beyond more slender; head-hairs in fours, anteantennal tuft multiple. Lateral comb of the eighth segment of many spines in a patch; skin finely spicular. Air-tube long, five times as long as wide, stout and gently tapered; pecten on the basal third, long, moderately dense, followed by some six hair-tufts crowded back to the posterior line, apparently representing three pairs; tip of the tube densely and strongly finely spicular. Anal segment somewhat longer than wide, ringed by the plate, the ventral brush on posterior half; dorsal tuft a long hair and five-haired brush on each side. Anal gills about as long as the width of the segment, pointed.

Colombia and Venezuela.

The larvæ occur in water in deep ground-holes. The adults will bite man and enter houses for the purpose, but their occurrence in hand-catches is not in large proportion.

Section CULEX Linnæus

CULEX (CULEX) NIGRIPALPUS Theobald

CULEX NIGRIPALPUS Theobald, Mon. Culic., ii, 322, 1901.
CULEX PALUS Theobald, Mon. Culic., iii, 194, 1903.
CULEX SIMILIS Theobald, Mon. Culic., iii, 207, 1903.
CULEX MICROSQUAMOSUS Grabham, Can. Ent., xxxvii, 407, 1905.
CULEX CARMODYÆ Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 210, 1906.
CULEX MORTIFICATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 210, 1906.
CULEX FACTOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 212, 1906.
CULEX REGULATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 213, 1906.
TRICHOPRONOMYIA MICROANNULATA Theobald, Mon. Culic., iv, 481, 1907.
CULEX PROXIMUS Dyar and Knab, Proc. Ent. Soc. Wash., xi, 38, 1909.
CULEX PRASINOPLEURUS Martini, Ins. Ins. Mens., ii, 68, 1914.
Culex mortificator, carmodyæ, CARAIBEUS, *similis, palus, factor, proximus, microsquamosus,* and *nigripalpus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 254, 255, 257, 339, 342, 371, 377, 403 and 428, 1915.
Culex similis Dyar and Knab, Ins. Ins. Mens., iii, 112, 1915.
Culex (Culex) palus Dyar and Knab, Ins. Ins. Mens., v, 176, 1917.
Culex inflictus and *factor,* Dyar, Ins. Ins. Mens., vi, 94 and 95, 1918.
Culex nigripalpus Dyar, Ins. Ins. Mens., ix, 28, 1921.
Culex (Culex) similis Dyar, Proc. U. S. Nat. Mus., lxii, 20, 1922.
Culex (Culex) nigripalpus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 209, 1925.
Culex nigripalpus Dyar, Ins. Ins. Mens., xiii, 28, 1925.
Culex (Culex) nigripalpus Dyar, Ins. Ins. Mens., xiii, 166, 1925.
Culex (Culex) nigripalpus Dyar, Ins. Ins. Mens., xiii, 213, 1925.

Female—Proboscis moderate, uniform, black. Occiput brown, with narrow, curved, blackish scales. Mesonotum very dark brown, with narrow, curved, very small, dark bronzy brown scales; pleuræ pale or greenish. Abdomen black, with or without (usually with) basal segmental white bands widening on the sides; venter largely pale. Legs black, femora white below, tibiæ whitish at tips. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, the last two joints hairy. Hypopygium (Plate XCIX, Fig. 346): Side-piece conical, rounded at tip; lobe at outer third, quadrate, bearing three rods, a leaf, and a seta, the latter lateral. Clasper curved, somewhat flattened on the outer half, with appendiculate subterminal spine. Tenth sternites stout, with long, curved, basal arm tufted with fine spines, an outer row of flat, blunt ones. Ninth tergites two prominent angles bearing many setæ. Mesosomal plate broadly quadrate, with a radial pecten at base of inner angle; inner arm flat and curved, minutely denticulately divided on the margin, outer arm thumb-shaped, three or four rather widely spaced teeth between, a long horn from the base exceeding the plate.

Larva (Plate XCIX, Fig. 346)—Head elliptical, wider than long, bulging at the sides, antennæ long, a tuft at outer third, the part beyond more slender, basal part spinulated; head-hairs in threes, long, anteantennal tuft multiple. Lateral comb of the eighth segment with many scales in a patch. Air-tube long, straight, about seven times as long as wide, pecten exceeding the basal fourth, followed by four single (or double) hairs, the subapical one moved laterad out of line. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long or with one or two short hairs on each side; a single small lateral hair. Anal gills as long as the segment, pointed.

Southern Florida, Bahamas, Antilles, Mexico, Central America, Panama, Colombia, Ecuador, Venezuela, Trinidad, the Guianas, and Brazil.

The larvæ live in clear ground-pools of a swampy or permanent nature. One of the most abundant tropical *Culex;* but the adults do not enter houses to any extent, and the species is not troublesome.

CULEX (CULEX) VIRGULTUS Theobald

Culex virgultus Theobald, Mon. Culic., ii, 123, 1901.
Culex bilineatus Theobald, Mon. Culic., iii, 196, 1903.
Culex bilineatus Bourroul, Mosq. do Bras., 41, 72, 1904.
Culex bilineatus Blanchard, Les Moust., 629, 1905.
Culex bilineatus Peryassú, Os Culic. do Braz., 190, 1908.
Culex virgultus Theobald, Mon. Culic., iv, 380, 1910.
Culex virgultus and *bilineatus* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 172 and 186, 1911.

Female—Proboscis moderate, black, pale below. Occiput brown, with narrow, curved, whitish scales, flat ones on the sides. Mesonotum brown, with fine narrow, curved, bronzy brown scales; pleuræ pale brown. Abdomen black with lateral segmental basal white spots; venter largely pale. Legs black, the femora whitish below, tibiæ whitish at tips. Wing-scales narrow.

Male—Coloration of the female. Palpi black, the last two joints hairy. Abdomen with segmental white bands. Hypopygium (Plate XCVII, Fig. 339): Side-piece conical; lobe subapical, bearing three rods, a leaf and a seta. Clasper curved, the apical half flattened, with appendiculate subterminal spine. Tenth sternites with long, curved basal arm, the tip tufted with fine spines, two on the outer side being broad and tooth-like but pointed. Ninth tergites two quadrate ridges bearing setæ. Mesosomal plate broad, the upper arm curved and smooth, pointed, long radii in the

angle, lower thumb-shaped, one large central tooth, a short tooth arising within towards base.

Larva—Unknown.

Brazil, Uruguay (Montevideo).

CULEX (CULEX) CHIDESTERI Dyar

CULEX CHIDESTERI Dyar, Ins. Ins. Mens., ix, 117, 1921.
Culex (Culex) chidesteri Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi. Afd. Trop. Hyg. No. 13, 240, 1925.
Culex (Culex) chidesteri Dyar, Ins. Ins. Mens., xiii, 162, 1925.
Culex (Culex) chidesteri Root, Ann. Journ. Hyg., vii, 578, 1927.

Female—Proboscis moderate, black, a pale band in the middle, not contrasted; occiput blackish, with narrow, curved, bronzy brown scales, flat white ones on the sides. Mesonotum brown, with fine, narrow, curved, bronzy brown scales; pleuræ pale brown. Abdomen black (denuded in the specimens). Legs black, femora white below, femora and tibiæ with whitish tips. Wing-scales narrow.

Male—Coloration of the female. Proboscis with a narrow white ring. Palpi exceeding the proboscis by nearly the length of the last two joints, black, the long joint broadly pale in the middle. Hypopygium (Plate XCV, Fig. 332): Side-piece conical, with large basal hollow; lobe subapical, bearing three rods, a leaf, and a seta. Clasper curved, flattened, thick at base, with appendiculate subterminal spine. Tenth sternites with curved basal arm, tip densely spined, the outermost ones short and stiff. Ninth tergites two rather diffused patches of setæ. Mesosomal plate wide, the tip excavate and finely denticulate on the margin, upper arm sheath-like, lower small, thumb-shaped; a long tooth from the base exceeds the plate.

Larva (Plate XCV, Fig. 332)—Head ovate, wider than long, bulging at the sides; antennæ large, a tuft at the outer third, the part beyond more slender, basal part spined, white, infuscated at extreme base and on apical part. (Head-hairs missing.) Lateral comb of the eighth segment of many narrow scales in a patch. Skin densely shortly pilose. Air-tube long, straight, about eight times as long as wide, pecten on the basal third, the terminal teeth scattered; five delicate four-haired paired tufts, all laterally situated. Anal segment as wide as long, ringed by the plate, which is pilose, ventral brush posterior; dorsal tuft a long hair and a long and three short ones on each side. Anal gills not as long as the segment, tapered.

Panama (Colon), Venezuela (Maracay), and Brazil (Porto das Caixas).

The larvæ occur in ground-pools. Dr. Root lately found this species in Venezuela.

CULEX (CULEX) STENOLEPIS Dyar and Knab

CULEX STENOLEPIS Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 60, 1908.
Culex stenolepis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 249, 1915.
Culex (Culex) stenolepis Dyar, Ins. Ins. Mens., vi, 95, 1918.

Female—Proboscis moderate, black at tip, grayish before, a broad whitish shade beneath, absent dorsally. Occiput brown, with narrow, curved scales, whitish in the middle, bronzy brown on each side, flat white ones below. Mesonotum brown, with whitish and dark bronzy brown scales forming an

illy defined tessellated pattern; pleuræ pale, mottled with brown. Abdomen black, with traces of white basal segmental bands, distinct spots on the sides; venter mostly pale. Legs brownish black, the femora largely pale beneath; femora and tibiæ with whitish tips; tarsi with white rings involving both ends of the joints, broad on the hind pair. Wing-scales narrow.

Male—Coloration of the female. Proboscis with an outer white ring. Palpi exceeding the proboscis, black with small white rings at middle of long joint and bases of last two. Hypopygium (Plate XCVIII, Fig. 342): Side-piece conical, the lobe at outer third bearing three rods, a leaf, and a seta. Clasper curved, flattened outwardly, with subapical appendiculate spine. Tenth sternites with a long, curved basal branch, the tip tufted with fine spines. Ninth tergites represented by patches of setæ. Mesosomal plate with the upper limb flat or T-shaped, lower thumb-shaped, a fine dentition of about six teeth centrally and a horn from the middle slightly exceeding the plate.

Larva (Plate XCVIII, Fig. 342)—Head elliptical, wider than long; antennæ long, slender, a tuft at the outer third, the part beyond more slender; head-hairs all multiple. Lateral comb of the eighth segment of sparsely placed scales in a patch. Air-tube about four times as long as wide, tapered outwardly; pecten on the basal third, followed by five two-haired tufts, the subapical one considerably displaced, the antepenultimate one less but also displaced. Anal segment longer than wide, ringed by the plate, the ventral brush on posterior half; dorsal tuft a long hair and a long and two shorter ones on each side; a small lateral two-haired tuft. Anal gills three times as long as the segment, tapered.

Mexico (Córdoba).

The larvæ were found in the water in the leaf-bases of Bromeliaceæ, a peculiar habitat for a true *Culex*.

CULEX (CULEX) LEPOSTENIS Dyar

CULEX (CULEX) LEPOSTENIS Dyar, Ins. Ins. Mens., xi, 70, 1923.
Culex (Culex) lepostenis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 240, 1925.
Culex (Culex) lepostenis Dyar, Ins. Ins. Mens., xiii, 165, 1925.

Female—Proboscis moderate, uniform, black. Occiput black, with narrow curved scales with whitish reflection and upright black ones. Mesonotum dark brown with narrow, curved, dark bronzy brown scales; pleuræ pale or greenish, faintly brown-banded. Abdomen black, with lateral basal segmental white patches; venter largely pale. Legs black, the femora white below; tips of femora and tibiæ white; tarsi with very narrow white bands involving both ends of the joints, distinct only on the hind legs. Wing-scales narrow.

Male—Coloration of the female. Proboscis and palpi entirely black, the latter exceeding by the length of the last joint. Hypopygium (Plate XCVIII, Fig. 343): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, a leaf, and a seta. Clasper curved, flattened on outer half, with appendiculate subterminal spine. Tenth sternites with long, curved basal arm, the tip tufted with fine spines. Ninth tergites represented by two ridges of setæ. Mesosomal plate with the upper arm very long, flat or T-shaped, the lower narrowly thumb-like, a row of eight or more long, slender teeth between, a long tooth from the base, exceeding the plate and resembling the upper limb.

Larva—Unknown.

Panama (Rio Cascajal).

The larvæ were found in the water in the leaf-bases of Bromeliaceæ. Allied to *stenolepis* of Mexico, but differing in many details.

CULEX (CULEX) CORNIGER Theobald

CULEX CORNIGER Theobald, Mon. Culic., iii, 173, 1903.
CULEX LACTATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 209, 1906.
CULEX HASSARDII Grabham, Can. Ent., xxxviii, 167, 1906.
CULEX BASILICUS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 169, 1906.
CULEX SUBFUSCUS Theobald, Mon. Culic., iv, 403, 1907.
Culex lactator LOQUACULUS Dyar and Knab, Smiths. Misc. Coll., Quart. Iss., lii, 254, 1909.
Culex corniger and *subfuscus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 240 and 429, 1915.
Culex (Culex) corniger Dyar and Knab, Ins. Ins. Mens., v, 174, 1917.
Culex (Culex) corniger Dyar, Ins. Ins. Mens., vi, 96, 1918.
CULEX LEUCOTELUS McCormack, Pan. Health Rep., 1918, 29, 1919.
Culex subfuscus Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 18, 1921.
Culex (Culex) corniger Dyar, Ins. Ins. Mens., ix, 28, 1921.
Culex (Culex) corniger Dyar, Proc. U. S. Nat. Mus., lxii, 23, 1922.
Culex (Culex) corniger Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 212, 1925.
Culex corniger Dyar, Ins. Ins. Mens., xiii, 28, 1925.
Culex (Culex) corniger Dyar, Ins. Ins. Mens., xiii, 161, 1925.

Female—Proboscis moderate, black, a white ring beyond the middle. Occiput black, with narrow, curved whitish scales. Mesonotum brown with narrow curved scales, dark brown in the middle, white around the sides and with a lateral projection or a detached spot of the white scales mesially; pleuræ pale, with blackish spots. Abdomen black, the segments with basal median and lateral white spots; venter mostly pale. Legs black, femora whitish below; femora and tibiæ with whitish apices; tarsi with narrow white rings involving both ends of the joints. Wing-scales narrow. Occasionally subject to variation in the loss of white markings.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last two joints, black, with small white rings at middle of long joint and bases of last two. Hypopygium (Plate XCIV, Fig. 330): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, a leaf, and a seta. Clasper curved, flattened outwardly, with subterminal appendiculate spine. Tenth sternites with moderately long curved basal arm, the tip tufted with fine spines, two or three on the outer margin somewhat tooth-like. Ninth tergites represented by two areas with long setæ. Mesosomal plate with the upper arm sheath-like, the lower stoutly produced in line with the upper margin, a number of basally curved appressed fine teeth between, giving a laminate appearance; a flat membranous tooth exceeding the plate.

Larva (Plate XCIV, Fig. 330)—Head rounded, bulging at the sides; antennæ small, uniform, a single hair at the middle; head-hairs all in a curved transverse row, upper and lower in threes, anteantennal in sixes, small median hairs double. Lateral comb of the eighth segment of many scales in a patch. Air-tube short, about two and a half times as long as wide, the pecten reaching the middle; four three- to four-haired tufts on posterior margin, the subapical one moved laterad out of line; two tufts on the dorsal aspect. Anal segment rather longer than wide, ringed by the

plate; ventral brush on posterior half; dorsal tuft of two long hairs on each side. Anal gills large, longer than the segment, ensiform.

Southern Florida, Antilles, Mexico, Central America, Panama, Venezuela, the Guianas, Trinidad, and Brazil.

The larvæ occur in transient ground-pools, receptacles, tree-holes, and bamboo. The larvæ breed rapidly like an *Aëdes,* which they much resemble in adaptational structure. The eggs have not been observed.

CULEX (CULEX) STIGMATOSOMA Dyar

CULEX STIGMATOSOMA Dyar, Proc. U. S. Nat. Mus., xxxii, 123, 1907.
CULEX EUMIMETES Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 61, 1908.
Culex stigmatosoma and *eumimetes* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 236 and 238, 1915.
Culex stigmatosoma Dyar and Knab, Ins. Ins. Mens., iv, 46, 1916.
Culex (Culex) stigmatosoma Dyar and Knab, Ins. Ins. Mens., v, 174, 1917.
Culex (Culex) stigmatosoma and *eumimetes* Dyar, Ins. Ins. Mens., vi, 96, 1918.
CULEX (CULEX) THRIAMBUS Dyar, Ins. Ins. Mens., ix, 33, 1921.
Culex (Culex) thriambus and *stigmatosoma* Dyar, Proc. U. S. Nat. Mus., lxii, 22 and 23, 1922.
Culex stigmatosoma Dyar, Ins. Ins. Mens., xii, 96, 1924.
Culex (Culex) stigmatosoma Freeborn, Mosq. of Calif., 438, 1926.

Female—Proboscis moderate, black, with a small white ring near the middle. Occiput black, with narrow, curved, whitish scales on the vertex. Mesonotum brown, with narrow, curved, bronzy brown scales, more or less mixed with whitish ones, not forming any defined pattern; pleuræ pale, banded with brown. Abdomen black, the segments with narrow basal white bands widening on the sides; venter pale, with more or less distinct rounded segmental black spots. Legs black, femora whitish beneath, femora and tibiæ white at tips; tarsi with white rings involving both ends of the joints, broad on the hind legs. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis, black, with white rings in the middle of the long joint and at bases of the last two. Hypopygium (Plate XCIV, Fig. 328): Side-piece conical, with large basal excavation, the lobe at the outer fourth; bearing three rods, a hooked filament, a leaf, and a seta. Clasper curved, flattened on outer half, with appendiculate subapical spine. Tenth sternites stout, with long recurved basal arm, the tip tufted with fine spines, the three or four outer ones stout and thick. Ninth tergites represented by two patches of setæ. Mesosomal plate with the upper arm denticulate, lower thumb-shaped, a small group of small teeth between, a horn from within rather thin and improminent.

Larva (Plate XCIV, Fig. 328)—Head elliptical, wider than long, bulging at the sides; antennæ long, a tuft at the outer third, the part beyond more slender, base spinulated; head-hairs all multiple. Lateral comb of the eighth segment of rather few scales in a patch. Air-tube four times as long as wide, a little tapered outwardly, pecten on the basal third; four large tufts posteriorly, the basal one within the pecten and a double lateral tuft, situated below and within the last tuft. Anal segment about as long as wide, ringed by the plate, ventral brush on posterior half; dorsal tuft a long hair and a long and a shorter one on each side; a small triple lateral hair. Anal gills as long as the segment, broad.

Utah, California, Texas, Mexico, Guatemala, Costa Rica, Venezuela.

The larvæ occur in pools in stream-beds in dry country which are left when the rivers disappear in the dry season and in artificial pools in excavations, fountains, etc. The Texas form, *thriambus*, has the hairs single on the air-tube of the larva, and is presumably entitled to subspecific rank.

CULEX (CULEX) MOLLIS Dyar and Knab

Culex carmodyæ MOLLIS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 171, 1906.
CULEX LATEROPUNCTATA Theobald, Mon. Culic., iv, 458, 1907.
CULEX EQUIVOCATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 203, 1907.
CULEX ELOCUTILIS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 255, 1909.
Culex lateropunctata Theobald, Mon. Culic., v, 390, 1910.
Culex lateropunctata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 182, 1911.
Culex elocutilis, mollis, DELYS, and *equivocator* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 247, 267, 317 and 327, 1915.
Culex mollis and *equivocator* Dyar, Ins. Ins. Mens., vi, 97, 1918.
Culex (Culex) mollis Dyar, Ins. Ins. Mens., ix, 28, 1921.
Culex (Culex) mollis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 216, 1925.
Culex (Culex) mollis Dyar, Ins. Ins. Mens., xiii, 167, 1925.
Culex (Culex) mollis Dyar, Ins. Ins. Mens., xiii, 213, 1925.
Culex mollis Bequaert, Med. Rep. Rice 7th Exp. Amazon, 201, 1926.

Female—Proboscis moderate, black. Occiput black with narrow, curved black scales. Mesonotum brown, with narrow, curved, dark brown scales; pleuræ pale. Abdomen black, the segments with lateral basal white spots; venter largely pale. Legs black with bronzy reflection, femora pale below; femora and tibiæ with pale tips; tarsi dark or with traces only of white rings on the joints, on hind legs only. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by over the length of the last joint, black. Hypopygium (Plate XCIX, Fig. 347): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, a filament, a leaf, and a seta. Clasper curved, flattened on outer half, with appendiculate subterminal spine. Tenth sternites rather thin, tufted with fine spines, with long recurved basal arm. Ninth tergites represented by a row of five or six setæ. Mesosomal plate with the upper limb produced and forked, T-shaped, lower pointed, a dense group of half a dozen teeth centrally, a long wide tooth from the base exceeding the plate.

Larva (Plate XCIX, Fig. 347)—Head ovate, wider than long; antennæ large, a tuft at outer third, the part beyond more slender, spinulate basally. Head-hairs in threes, anteantennal tuft in six. Lateral comb of the eighth segment of many spines in a patch. Air-tube about five times as long as wide, tapered on the outer half, the pecten on basal third, followed by three two-haired tufts, the middle one moved laterad out of line. Anal segment about as long as wide, ringed by the plate, which is a little spiny behind; ventral brush posterior; dorsal tuft a long hair and a long and one or two short ones on each side. Anal gills about as long as the segment.

Costa Rica, Panama, Colombia, Venezuela, the Guianas, Trinidad, and Brazil.

The larvæ are found in the water in tree-holes. Recent specimens from Dr. J. Bequaert extend the known distribution to Rio Branco, Brazil.

CULEX (CULEX) SALINARIUS Coquillett

CULEX SALINARIUS Coquillett, Ent. News, xv, 73, 1904.
Culex salinarius Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 373, 1915.
Culex (Culex) salinarius Dyar and Knab, Ins. Ins. Mens., v, 175, 1917.
Culex (Culex) salinarius Dyar, Ins. Ins. Mens., vi, 96, 1918.
Culex (Culex) salinarius Dyar, Proc. U. S. Nat. Mus., lxii, 20, 1922.

Female—Proboscis moderate, black at tip, paler toward base. Occiput dark brown, with narrow, curved, blackish scales. Mesonotum brown, with bronzy brown, narrow, curved small scales; pleuræ pale. Abdomen black, with small lateral segmental white spots; venter sordid pale. Legs bronzy brown, femora pale below; tarsi rarely with pale brownish rings at the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by the length of the last joint, brown, with small whitish rings at middle of long joint and base of penultimate, often indistinct. Hypopygium (Plate XCIX, Fig. 348): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, a filament, a leaf, and a seta. Clasper curved, flattened on outer half, with appendiculate subterminal spine. Tenth sternites with long, curved, basal arm, apex tufted with fine spines, three or four on the outer side thick and stiff. Ninth tergites rudimentary. Mesosomal plate broad, upper limb curved and sheath-like, lower shortly thumb-shaped; three sharp, well spaced teeth under the upper limb, a sharp horn from the base, a long tooth from an angle, its margin curved around to the lower limb.

Larva (Plate XCIX, Fig. 348)—Head transverse, bulging on the sides; antennæ large, a tuft at outer third, the part beyond slender, base spinulated; head-hairs in threes, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a patch. Air-tube long, straight, about eight times as long as wide, pecten reaching beyond the basal fourth, followed by four small tufts, the subapical one moved laterad out of line, all rather few-haired. Anal segment about as long as wide, ringed by the plate, ventral brush on posterior half; dorsal tuft a long hair and a long and two short ones on each side; a small two-haired lateral tuft. Anal gills about as long as the width of the segment, tapered.

Atlantic States from New Jersey to North Carolina, Mississippi Valley from Minnesota to Texas.

The larvæ occur in ground-pools, especially marshy ones near the sea-coast, although not necessarily salt; also in various locations, occasionaly in rain-barrels.

CULEX (CULEX) ERYTHROTHORAX Dyar

CULEX ERYTHROTHORAX Dyar, Proc. U. S. Nat. Mus., xxxii, 124, 1907
Culex erythrothorax Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 315, 1915.
Culex erythrothorax Dyar, Ins. Ins. Mens., iv, 47, 1916.
Culex (Culex) erythrothorax Dyar and Knab, Ins. Ins. Mens., v, 175, 1917.
Culex (Culex) erythrothorax Dyar, Ins. Ins. Mens., vi, 96, 1918.
Culex (Culex) erythrothorax Dyar, Proc. U. S. Nat. Mus., lxii, 19, 1922.
Culex (Culex) erythrothorax Freeborn, Mosq. of Calif., 442, 1926.

Female—Proboscis moderate, black apically, pale toward base. Occiput red-brown, with narrow, curved, whitish scales. Mesonotum more or less

bright reddish brown, with narrow, curved, bronzy brown scales; pleuræ pale brown. Abdomen black, with narrow basal segmental whitish bands; venter pale, sordid. Legs brown with bronzy reflection, the femora pale below, tibiæ narrowly whitish at tips. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by nearly the length of the last two joints, brown. Hypopygium (Plate C, Fig. 349): Side-piece conical with large basal excavation, lobe at the outer fourth bearing three rods, a filament, a leaf, and a seta. Clasper curved, flattened on the outer half, with appendiculate subterminal spine. Tenth sternites trigonate, with long, curved basal arm, with tuft of fine spines at tip, two or three of the outer ones coarse. Ninth tergites rudimentary. Mesosomal plate with the upper arm sheath-like and smooth, lower pointed, thumb-shaped, a row of about eight subequal denticles between, a long tooth from the base, slightly exceeding the plate.

Larva (Plate C, Fig. 349)—Head elliptical, wider than long, bulging at the sides; head-hairs, upper in five, lower in three, anteantennal tuft in six. Antennæ large, a tuft at outer third, the part beyond slender, spinulated on basal part. Lateral comb of the eighth segment of many spines in a large patch. Air-tube about six times as long as wide, straight and gently tapered, the pecten on the basal fifth, followed by five haired tufts, the subapical one moved laterad out of line, decreasing in length outwardly, all moderate, two- or three-haired. Anal segment longer than wide, ringed by the plate, ventral brush on posterior half; dorsal tuft a long hair and a long and a short hair on each side. Anal gills as long as width of segment, ensiform.

Southern California (San Diego, San Onofre, Gardena, Bakersfield, Salinas).

The larvæ live in the reedy edges of drying ponds or lakes, found from April to June. This species probably extends to Lower California, but no collecting has been done there to establish the fact.

CULEX (CULEX) FEDERALIS Dyar

CULEX FEDERALIS Dyar, Ins. Ins. Mens., xi, 186, 1923.
CULEX BADGERI Dyar, Ins. Ins. Mens., xii, 127, 1924.
Culex (Culex) badgeri Freeborn, Mosq. of Calif., 444, 1926.

Female—Proboscis moderate, rather slender, black. Occiput black, with narrow, curved, bronzy brown scales. Mesonotum bright brown, with bronzy brown, narrow, curved scales; pleuræ pale. Abdomen black, the segments with small, lateral, dull whitish sordid marks; venter sordid yellowish. Legs black, femora pale below, tibiæ whitish at tips. Wing-scales narrow.

Male—Coloration of the female. Abdominal segments narrowly dull pale sordid at their bases. Palpi exceeding the proboscis by nearly the length of the last two joints, blackish. Hypopygium (Plate C, Fig. 352): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, a hooked filament, a leaf, and a seta. Clasper curved, flattened on outer half, with subterminal appendiculate spine. Tenth sternites with long recurved basal arm, the tip tufted with fine spines, two or three outer spines coarse. Ninth tergites rudimentary. Mesosomal plate with the upper arm small and denticulate, the lower broadly fish-tailed, pointed, short (structure of *salinarius*), between the arms about eight fine

teeth, tooth from the base large, pointed, but subapically widened in a broad shoulder.

Larva—Unknown.

Mexico (Xochimilcho and Tlalpam, D. F.) and southern California (Bakersfield).

The larvæ occur in ground-pools in arid country. Their exact habitat is unknown, for while Dr. Regino Balanzario sent many adults from Mexico City and Major C. K. Badger bred adults from mixed cultures at Bakersfield, in neither case was the larva isolated. This species doubtless represents *salinarius* in the southwest and Mexican table-land.

CULEX (CULEX) INTERFOR Dyar

CULEX (CULEX) INTERFOR Dyar, new species (here published).

Female—Proboscis moderate, uniform, black, somewhat paler beneath centrally. Occiput with narrow, bronzy brown scales, a patch of flat white ones on the side. Mesonotum with fine, hair-like, bronzy brown scales. Abdomen black above, without bands, only small basal segmental lateral white patches; venter sordid whitish. Legs dark, the tarsi with very narrow whitish rings at the joints, involving both ends of the joints, which are indistinct in certain lights. Wing-scales narrow, dark.

Male—Coloration of the female, the palpi and proboscis without white rings. Hypopyguim: Side-piece conical, moderate; lobe subapical, rather large, bearing three rods, a hooked filament, a leaf, and a seta. Clasper stout, strongly curved, margined, with slightly subapical appendiculate spine, blunt at tip. Tenth sternites moderate, with long basal arm, the tip tufted with spines, which become coarser and in a single row outwardly; basal arm with a sharp point and well chitinized outwardly; mesosomal plate large, quadrate, the upper angle running out into a long sharp horn, then a long smooth margin to the chitinized thumb-like lower limb; basal horn very stout, striated, blunt, not as long as the plate of mesosome.

Larva—Unknown.

Argentina.

Two males and three females, taken at light on a train en route from Tucumán to Jujuy, Argentina, May 4, 1927 (M. Kisliuk, jr.).

CULEX (CULEX) JANITOR Theobald

CULEX JANITOR Theobald, Mon. Culic. iii, 183, 1903.
Culex janitor Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 184, 1911.
Culex janitor Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., ii, 258, 1915.
Culex (Culex) janitor Dyar, Ins. Ins. Mens., vi, 96, 1918.
Culex (Culex) janitor Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 21, 1921.
Culex (Culex) janitor Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 215, 1925.

Female—Proboscis moderate, black. Occiput blackish, with narrow, curved, white scales and erect black bristles. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ pale, with brown spots. Abdomen black, with lateral segmental basal white spots, largest posteriorly; venter pale sordid, the posterior segments more or less blackish apically. Legs black, femora whitish below, femora and tibiæ with whitish tips; tarsi with small white rings at the joints, most distinct on the hind legs. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, with traces of white rings at middle of long joint and bases of last two. Proboscis narrowly white-ringed outwardly. Hypopygium (Plate C, Fig. 353): Side-piece conical, with large basal excavation, the lobe at outer fourth bearing three rods, a fine seta, a leaf, and a stout seta. Clasper curved, flattened on outer half with appendiculate subapical spine. Tenth sternites stout, with curved basal arm, the tip tufted with fine spines. Ninth tergites represented by a few setæ. Mesosomal plate thick, the upper limb narrow and pointed, lower thumb-shaped but above the actual base, which is also bluntly thumb-shaped (as in *salinarius*), three small sharp teeth centrally and a narrow pointed horn from within.

Larva (Plate C, Fig. 353)—Head rounded, wider than long; antennæ not as long as the head, uniform, a small multiple tuft at the middle; head-hairs upper in five, lower in six, anteantennal in eight. Lateral comb of the eighth segment of many scales in a patch. Air-tube four times as long as wide, rather thickly fusiform, pecten small but sparse and exceeding the basal third; five posterior hair-tufts, the basal two within the pecten, the subapical one moved laterad out of line, basal three five-haired, last two three-haired. Anal segment as long as wide, ringed by the plate, ventral brush posterior; dorsal tuft of a long hair and three short ones on each side. Anal gills over twice as long as the segment, broad, inflated, and obviously tracheate.

Jamaica.

The larvæ live in the water in crab-holes. The species probably occurs also in the other islands of the Greater Antilles, but has not been reported. This may be due to the fact that Dr. M. Grabham's careful collecting in Jamaica has not been duplicated elsewhere in the West Indies.

CULEX (CULEX) SECUTOR Theobald

Culex secutor Theobald, Mon. Culic., ii, 321, 1901.
Culex lamentator Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 219, 1906.
Culex quasisecutor Theobald, Mon. Culic., iv, 398, 1907.
Culex towери Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 13, 1907.
Culex secutor and *quasisecutor* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 170, 1911.
Culex lamentator, towери, and *secutor* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 276, 281 and 282, 1915.
Culex (Culex) secutor Dyar, Ins. Ins. Mens., vi, 97, 1918.
Culex (Culex) secutor Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 215, 1925.

Female—Proboscis moderate, black. Occiput black with narrow, curved, whitish scales. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ pale. Abdomen black, the sides with basal segmental whitish spots; venter sordid pale, the segments more or less blackish at their apices. Legs black, femora white below basally, femora and tibiæ with whitish tips; tarsi with narrow white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, whitish beneath except at the tips of the joints. Proboscis with a small white ring beyond the middle. Hypopygium (Plate CI, Fig. 354): Side-piece conical, with large basal excavation, the lobe at the outer fourth, bearing three rods, a seta, a leaf,

and a stout seta. Clasper stout, flattened on outer half, with appendiculate subterminal spine. Tenth sternites with long, curved basal arm, the tip tufted with fine spines. Ninth tergites represented by a row of weak setæ. Mesosomal plate not very broad, upper limb slender and pointed, lower thumb-shaped, the base not produced, about four moderate teeth between in a close group, a long sharp horn-like tooth from base within.

Larva (Plate CI, Fig. 354)—Head elliptical, wider than long, bulging on the sides; antennæ long, slender, a tuft at the outer third, the part beyond more slender, basal part spinulated; head-hairs in threes, ante-antennal tuft multiple. Lateral comb of the eighth segment of many narrow scales in a patch. Air-tube long and only slightly fusiform, six times as long as wide, pecten exceeding the basal fourth, followed by five pairs of tufts, irregularly placed and sometimes increased by a single tuft, all toward the posterior margin of the tube except the apical one, moderate, subequal, the basal ones five-haired. Air-tube longer than wide, ringed by the plate, the ventral brush on posterior half; dorsal tuft a long hair and a long and one or two short ones on each side; a small two- or three-haired lateral tuft. Anal gills about as long as the segment, pointed.

Greater Antilles.

The larvæ prefer the water in tree-holes and artificial receptacles, but are also found in ground-pools.

CULEX (CULEX) DOLOSUS (Lynch Arribálzaga)

HETERONYCHA DOLOSA Lynch Arribálzaga, Rev. Mus. de La Plata, ii, 156, 1891.
Culex fatigans Theobald (not Wiedemann), Mon. Culic., ii, 151, 1901.
CULEX BONARIENSIS Brèthes, Ann. Mus. Nac. Nat. Hist. B. A., xxviii, 213, 1916.
Aëdes dolosa Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 614, 1917.
Aëdes (Heteronycha) dolosa Dyar, Ins. Ins. Mens., vii, 88, 1919.
Culex bonariensis Dyar, Ins. Ins. Mens., vii, 86, 1919.
Culex dolosa Dyar, Ins. Ins. Mens., ix, 150, 1921.
Culex dolosa Dyar, Ins. Ins. Mens., ix, 150, 1921.
Aëdes (Heteronycha) dolosa Dyar, Proc. U. S. Nat. Mus., lxii, 3, 1922.
Heteronycha dolosa Dyar, Ins. Ins. Mens., xii, 57, 1924.

Female—Proboscis moderate, black. Occiput black with narrow, curved, whitish and brownish scales. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ pale brown. Abdomen black, the segments with basal white bands, widening at the sides; venter largely pale, some blackish scales centrally. Legs black, femora pale below, tibiæ whitish at tip, tarsi with or without narrow white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, whitish beneath, especially centrally on long joint and at bases of last two. Proboscis with a trace of a white ring centrally. Hypopygium (Plate C, Fig. 350): Side-piece conical, with large basal excavation, lobe at outer fourth, bearing three rods, a hooked filament, a leaf, and a seta. Clasper curved, flattened on outer half, with appendiculate subterminal spine. Tenth sternites with long recurved basal branch, the tip tufted with fine spines. Ninth tergites represented by a row of setæ. Mesosomal plate with the upper arm narrow, long, sinuate, the lower strongly recurved and pointed, about five long teeth between and a long horn from the base which exceeds the plate.

Larva—Head rounded, wider than long, bulging at the sides. (Antennæ missing.) Head-hairs multiple. Lateral comb of the eighth segment of many narrow scales in a patch. Air-tube about six times as long as wide, the pecten on the basal third, followed by four short, four-haired tufts, the subapical one moved laterad out of line. Anal segment longer than wide, ringed by the plate, ventral brush on posterior half; dorsal tuft a long hair and a long and a short one on each side. Anal gills as long as the segment, pointed.

Argentina.

CULEX (CULEX) LYGRUS Root

CULEX (CULEX) LYGRUS Root, Am. Journ. Hyg., vii, 579, 1927.

Female—Unknown.

Male—Proboscis moderate, black, with a white ring in the middle. Occiput black with narrow, curved, whitish scales. Mesonotum dark brown, with narrow, curved, bronzy brown scales; pleuræ pale brown. Palpi exceeding the proboscis by more than the length of the last joint, black, with whitish rings or areas at middle of long joint and bases of last two. (Abdomen missing.) Legs black, femora pale below, femora and tibiæ with whitish tips; tarsi with very narrow white rings involving both ends of the joints. Wing-scales narrow. Hypopygium (Plate C, Fig. 351): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, a hooked filament, a leaf, and a seta. Clasper curved, flattened on the outer half, with subterminal appendiculate spine. Tenth sternites with long recurved basal arm, the tip tufted with fine spines, the outer two or three stiff. Ninth tergites represented by rows of setæ. Mesosomal plate with the upper arm narrow and tooth-like, the lower thumb-shaped, about four sharp teeth between; tooth from the base very large and broad, exceeding and overlapping the plate.

Larva—Unknown.

Brazil (Magé)..

Described from Dr. Root's unique type.

CULEX (CULEX) DECLARATOR Dyar and Knab

CULEX DECLARATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 211, 1906.
CULEX INQUISITOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 211, 1906.
CULEX PROCLAMATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 211, 1906.
CULEX JUBILATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 201, 1907.
CULEX VINDICATOR Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 255, 1909.
CULEX DICTATOR Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., 199, 255, 1909.
Culex vindicator, dictator, declarator, inquisitor, jubilator, revelator, and *proclamator* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 264, 266, 270, 272, 274, and 279, 1915.
Culex (Culex) declarator Dyar, Ins. Ins. Mens., vi, 97, 1918.
Culex virgultus Bonne-Wepster and Bonne (not Theobald), Ins. Ins. Mens., ix, 21, 1921.
Culex virgultus Dyar (not Theobald), Ins. Ins. Mens., ix, 29, 1921.
Culex declarator Dyar, Ins. Ins. Mens., ix, 195, 1921.
Culex (Culex) declarator Dyar, Ins. Ins. Mens., xi, 176, 1923.
Culex (Culex) declarator Dyar, Ins. Ins. Mens., xiii, 213, 1925.
Culex (Culex) declarator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 219, 1925.
Culex (Culex) declarator Root, Am. Journ. Hyg., vii, 577, 1927.

Female—Proboscis moderate, black. Occiput black, with narrow, curved, pale scales and dense, erect, dark bristles. Mesonotum dark brown with

narrow, curved, bronzy brown scales; pleuræ pale or greenish, often with brown spots. Abdomen black, the segments with lateral pale spots; venter pale sordid with more or less black marking medianly. Legs black, with bronzy reflection, femora whitish below; femora and tibiæ with whitish tips; tarsal joints very narrowly white-ringed, rarely with white marks absent. Wing-scales narrow.

Male—Coloration of female. Palpi exceeding the proboscis by over the length of the last joint, black. Abdomen with basal segmental white bands. Hypopygium (Plate XCVII, Fig. 340): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, an expanded filament, a leaf, and seta. Clasper curved, flat on outer half, with appendiculate subapical spine. Tenth sternites with long, curved, slender basal arm, the tip tufted with rather coarse spines. Ninth tergites represented by rows of shortened setæ. Mesosomal plate stout, the upper limb a short point, lower pointed, thumb-shaped; centrally three large (or two large and one small) claw-like teeth, infuscated, and the principal part of the plate; inner horn with large basal excavation, itself a short point not exceeding the edge of the plate.

Larva (Plate XCVII, Fig. 340)—Head rounded, wider than long, the sides slightly bulging; antennæ large, a tuft at outer third, the part beyond more slender, basal part spinulated; head-hairs in threes, anteantennal tuft multiple. Lateral comb of the eighth segment of many small scales in a patch. Air-tube about four times as long as wide, the apical half tapering, pecten reaching about to the middle, somewhat spirally twisted outwardly, followed (or the first tuft just within the pecten) by three tufts, the middle one moved laterad out of line; first two tufts double- or single-haired, last tuft three-haired. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short one on each side; a small lateral single (or triple) hair. Anal gills longer than the segment, tapered.

Texas (Brownsville), Mexico, Central America, Panama, Venezuela, the Guianas, Lesser Antilles, Brazil.

The larvæ are found in the water in tree-holes and small, usually dirty, ground-pools, rock-holes, etc.

CULEX (CULEX) BIDENS Dyar

CULEX BIDENS Dyar, Ins. Ins. Mens., x, 190, 192.

Female—Proboscis moderate, black. Occiput black with narrow, curved, pale scales and dense, erect, dark bristles. Mesonotum dark brown with narrow, curved, bronzy brown scales; pleuræ pale or greenish, often with brown spots. Abdomen black, the segments with lateral pale spots; venter pale sordid with more or less black marking medianly. Legs black with bronzy reflection, femora whitish below; femora and tibiæ with whitish tips; tarsal joints very narrowly white-ringed, rarely the white marks absent. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by over the length of the last joint, black. Abdomen with basal segmental white bands. Hypopygium (Plate XCVII, Fig. 341): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, an expanded filament, a leaf, and a seta. Clasper curved, flattened on outer half, with appendiculate subterminal spine. Tenth sternites with long, curved basal arm, the tip tufted with spines. Ninth tergites represented

by rows of setæ. Mesosomal plate, upper arm thin, filamentous, bent, lower pointed thumb-shaped, the lower angle of plate similarly produced; two (or three) long, slender teeth from the margin with one (or two) points below.

Larva—Unknown.

Bolivia (Rosario, Lake Rocagua) and Venezuela (Ocumare).

Very close to *declarator*, but the teeth of the mesosomal plate of the male hypopygium present a different form.

CULEX (CULEX) INTERROGATOR Dyar and Knab

CULEX INTERROGATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 209, 1906.
CULEX REFLECTOR Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 256, 1909.
Culex interrogator and *reflector* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 417 and 419, 1915.
Culex interrogator and *reflector* Dyar, Ins. Ins. Mens., vi, 98 and 99, 1918.
Culex (Culex) interrogator Dyar, Ins. Ins. Mens., xi, 176, 1923.
Culex (Culex) reflector Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 220, 1925.

Female—Proboscis moderate, black. Occiput black, with narrow, curved, whitish scales. Mesonotum dark brown with narrow, curved, bronzy brown scales; pleuræ pale brown. Abdomen black, the segments with basal white bands; venter largely pale. Legs black, with bronzy reflection, the femora white below; femora and tibiæ with whitish tips; tarsi with very narrow or no white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, with whitish markings, especially beneath, at middle of long joint and bases of last two. Proboscis with a small white ring beyond the middle. Hypopygium (Plate XCIV, Fig. 331): Side-piece conical with large basal excavation, the lobe at the outer fourth, bearing three rods, a filament (rarely two filaments), a leaf, and a seta. Clasper curved, flattened on outer half, with appendiculate subapical spine. Tenth sternites with long curved basal arm, the tip tufted with fine spines. Ninth tergites represented by rows of seta. Mesosomal plate thick, truncate, without projecting arms, the surface half smooth, half with fine denticles; a long tooth arising from the middle, exceeding the margin of the plate.

Larva (Plate XCIV, Fig. 331)—Head elliptical, wider than long, bulging on the sides; antennæ long, slender, a tuft at outer third, the part beyond it more slender, basal part spinulated; head-hairs in threes, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a patch. Air-tube short, slightly less than three times as long as wide, the outer third tapered; pecten reaching the basal three-fourths, coarse outwardly and slightly spiral, inclosing four tufts, two- or three-haired, the subapical one moved laterad out of line. Anal segment rather longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and one or two short ones on each side; a small single lateral hair. Anal gills longer than the segment, tapered.

Mexico and Panama.

The larvæ occur in very dirty ground-pools, tree-holes, etc.

CULEX (CULEX) TERRITANS Theobald

CULEX TERRITANS Walker, Ins. Saund., Dipt., i, 428, 1856.
CULEX RESTUANS Theobald, Mon. Culic., ii, 142, 1901.
Culex restuans Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 333, 1915.
CULEX BREHMEI Knab, Proc. Biol. Soc. Wash., xxix, 161, 1916.

Culex (Culex) restuans Dyar and Knab, Ins. Ins. Mens., v, 176, 1917.
Culex (Culex) restuans Dyar, Ins. Ins. Mens., vi, 98, 1918.
Culex restuans Dyar, Ins. Ins. Mens., vii, 31, 1919.
Culex (Culex) territans Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 75, 1921.
Culex (Culex) territans Dyar, Proc. U. S. Nat. Mus., lxii, 18, 1922.
Culex territans Dyar, Ins. Ins. Mens., x, 60, 1922.
Culex (Culex) territans Freeborn, Mosq. of Calif., 440, 1926.

Female—Proboscis moderate, black. Occiput black, with narrow, curved, brown scales, a margin of white ones behind the eyes, widening below. Mesonotum brown, with bronzy brown scales, often ornamented with a few whitish ones, especially appearing as a pair of median dots, not always present; pleuræ pale brown. Abdomen black, the segments with basal white bands which widen a little in the middle and at the sides; venter largely pale. Legs black, with bronzy reflection, the femora white below; femora and tibiæ with whitish tips; tarsi entirely dark or with faint pale bands at the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, with faint paler bands at middle of the long joint and bases of the last two. Hypopygium (Plate CI, Fig. 355): Side-piece conical, with large basal excavation, the lobe at the outer fourth unusually narrow and high, bearing three rods, a filament, and a seta. Clasper curved, flattened on outer half, with appendiculate subterminal spine. Tenth sternites with small basal arm, curved in a half circle, the tip tufted with spines. Ninth tergites rounded, subprominent, bearing fine setæ. Mesosomal plate small, subquadrate, bearing a single central tooth and only very slight denticles on the margin.

Larva (Plate CI, Fig. 355)—Head rounded, wider than long, bulging at the sides; head-hairs in fives or sixes, anteantennal tuft more numerous; antennæ moderate, uniform, a multiple tuft at about the middle, spinulated throughout. Lateral comb of the eighth segment of many scales in a patch. Air-tube five times as long as wide, subfusiform, pecten on the basal third, followed by three tufts, the middle one moved latered out of line, basal two single-haired and long, last one three-haired and short. Anal segment rather longer than wide, the ventral brush on posterior half; dorsal tuft of two long hairs on each side; a single small lateral hair. Anal gills longer than the segment, rounded.

Eastern North America to Mississippi Valley from Canada to the Gulf of Mexico; mountains of California.

The larvæ frequent dirty pools, artificial receptacles, etc. This species takes the place of *pipiens* in the northern woods as the semidomesticated house mosquito, breeding in rain-barrels. The species occurs also with *pipiens* in the east and with *quinquefasciatus* in the south as a troublesome domestic form, although it breeds much more in the open than the two species mentioned, which are almost confined to artificial receptacles.

CULEX (CULEX) BRETHESI Dyar

Culex lynchii Brèthes (male not female), Anal. Mus. Nac. Hist. Nat. B. A. xxviii, 24, 214, 1916.
Culex brethesi Dyar, Ins. Ins. Mens., vii, 86, 1919.

Female—Proboscis moderate, black, paler toward base. Occiput dark, with narrow, curved, bronzy scales, broadly white behind the eyes below. Mesonotum brown, with bronzy brown, narrow, curved scales; pleuræ

pale brown. Abdomen black, with slight traces of basal segmental pale bands, the lateral spots distinct; venter largely pale. Legs black with bronzy reflection, femora white below; femora and tibiæ with whitish apices; tarsi sometimes with indications of pale, narrow marks at the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, with indications of whitish at middle of long joint and bases of the last two. Abdomen with segmental white bands distinct. Hypopygium (Plate CI, Fig. 356): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, a filament, a leaf, and a seta. Clasper curved, flattened on the outer half, with subapical appendiculate spine. Tenth sternites stout, a basal arm directed at right angles, just the tip curved, apically tufted with fine spines. Ninth tergites represented by rows of setæ. Mesosomal plate short, with small upper and lower angles and a curved central tooth, the horn from the base rising high above the plate, with thickened margin and tooth-like tip.

Larva—Unknown.

Argentina (Buenos Aires).

CULEX (CULEX) ACHARISTUS Root

CULEX (CULEX) ACHARISTUS Root, Am. Journ. Hyg., vii, 578, 1927.

Female—Unknown.

Male—(Head missing.) Mesonotum dark brown with bronzy-brown, narrow, curved scales; pleuræ green. (Abdomen missing, judging from the balsam mount with broad white basal segmental bands, venter pale, the terminal segments blackish towards tips.) (Legs missing.) Wing-scales narrow. Hypopygium (Plate XCVIII, Fig. 344): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing a hooked filament, three rods, a leaf, and a seta, the order of insertion of the parts reversed from the usual condition. Clasper straight, broad, sharply compressed at the tip, with very minute rudimentary subapical spine. Tenth sternites broad, with curved basal appendage, the tip tufted with fine spines. Ninth tergites represented by rather long rows of setæ. Mesosomal plate with narrow, pointed upper limb, short angled lower one, with two or three small denticles between; basal horn small, indistiguishable from the other teeth.

Larva—Unknown.

Brazil (Agua Limpa).

Described from Dr. Root's unique type.

CULEX (CULEX) PINAROCAMPA Dyar and Knab

CULEX PINAROCAMPA Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 59, 1908.

Culex pinarocampa Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 251, 1915.

Culex (Culex) pinarocampa Dyar, Ins. Ins. Mens., vi, 95, 1918.

Female—Proboscis moderate, black, a white ring beyond the middle. Occiput black, with narrow, curved white scales. Mesonotum brown, with narrow, curved, red-brown scales, more or less variegated with white ones, especially in two median spots; pleuræ pale with brown spots. Abdomen black, with basal segmental white bands, widening at the sides; venter largely pale. Legs black, femora broadly whitish beneath; femora and tibiæ with whitish tips; tarsi with white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, with narrow white rings at middle of long joint and bases of last two. Hypopygium (Plate XCVIII, Fig. 345): Side-piece conical, with large basal excavation, the lobe at outer fourth bearing three rods, two small setæ, a leaf, and a large seta. Clasper curved, flattened on outer half, with subapical appendiculate spine. Tenth sternites with recurved basal arm, the tip tufted with fine spines. Ninth segment entire, but small, the tergites represented by two or more dense patches of setæ. Mesosomal plate large, upper limb curved and sheath-like, lower thickly thumb-shaped, a group of four small teeth between, a sharp tooth arising about the middle and exceeding the plate.

Larva (Plate XCVIII, Fig. 345)—Head rounded, wider than long, bulging at the sides; antennæ long, a tuft at the outer third, the part beyond more slender, basal part spined; head hairs, upper in six lower in four, anteantennal tuft multiple. Lateral comb of the eighth segment of small spines in a patch. Air-tube about six times as long as wide, tapered outwardly, the pecten on the basal third, followed by four two-haired tufts, the subapical one moved laterad out of line. Anal segment about as long as wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side; a small lateral hair. Anal gills three times as long as the segment, ensiform.

Mexico.

The larvæ occur in rock-pools along streams and ditches. The species has not been found south of Mexico.

CULEX (CULEX) QUINQUEFASCIATUS Say

CULEX QUINQUEFASCIATUS Say, Journ. Acad. Nat. Sci. Phila., iii, 10, 1823.
CULEX FATIGANS Wiedemann, Auss. Zweifl. Ins., i, 10, 1828.
CULEX CUBENSIS Bigot, Hist. Fis. Ins. Cuba, vii, 239, 1856.
CULEX SEROTINUS Philippi, Verz. Zool.-Bot. Ges. Wien, xv, 595, 1865.
CULEX AUTUMNALIS Weyenbergh, Los Hab. Del. Rio Prim., 11, 1882.
CULEX PENAFIELI Williston, La Nat., vii, 326, 1887.
CULEX MACLEAYI Skuse, Proc. Linn. Soc. N. S. W. (2), iii, 1746, 1889.
CULEX SKUSEI Giles, Handb. Gn. or Mosq., 302, 1900.
CULEX QUASIPIPIENS Theobald, Mon. Culic., ii, 136, 1901.
CULEX FOOCHOWENSIS Theobald, Mon. Culic., ii, 137, 1901.
CULEX FATIGANS LUTEOANNULATUS Theobald, Mon. Culic., ii, 159, 1901.
Culex fatigans macleayi Theobald, Mon. Culic., ii, 159, 1901.
Culex fatigans skusei Theobald, Mon. Culic., ii, 159, 1901.
CULEX FATIGANS TRILINEATUS Theobald, Mon. Culic., iii, 159, 1901.
CULEX BARBARUS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 210, 1906.
CULEX OSAKAENSIS Theobald, Mon. Culic., iv, 439, 1907.
CULEX CHRISTOPHERSII Theobald, Mon. Culic., iv, 453, 1907.
CULEX RAYMONDII Tamayo, Mem. Mun. Lima, xxxvii, 190, 1907.
CULEX AIKENII Dyar and Knab (not Aiken), Proc. U. S. Nat. Mus., xxv, 61, 1908.
CULEX REVOCATOR Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., 199, 256, 1909.
CULEX LACHRIMANS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lii, 259, 1909.
CULEX GOUGHII Theobald, Union S. Afr., Dept. 1st Rep. Vet. Res., 269, 1911.
Culex fatigans Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 173, 1911.
CULEX QUINQUEVITTATUS Marshall, Rev. Appl. Ent. (B), 11, 1913.
CULEX ASEYEHÆ Dyar and Knab, Ins. Ins. Mens., iii, 112, 1915.
Culez raymondii Knab, Rep. Exp. S. Am. Harv. School Trop. Med., 212, 1915.
Culex barbarus, revocator, and *quinquefasciatus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 337, 344, and 345, 1915.
Culex (Culex) quinquefasciatus Dyar and Knab, Ins. Ins. Mens., v, 177, 1917.

Culex (Culex) quinquefasciatus Dyar and Knab, Ins. Ins. Mens., vi, 99, 1918.
Culex fatigans Lutz, Mem. Inst. O. Cruz, x, 86, 1919.
Culex (Culex) quinquefasciatus Dyar, Ins. Ins. Mens., viii, 378, 1920.
Culex fatigans Edwards, Bull. Ent. Res., xii, 345, 1921.
Culex (Culex) quinquefasciatus Dyar, Ins. Ins. Mens., ix, 32, 1921.
Culex (Culex) quinquefasciatus Dyar, Proc. U. S. Nat. Mus., lxi, 16, 1922.
Culex (Culex) quinquefasciatus Dyar, Ins. Ins. Mens., xi, 176, 1923.
Culex quinquefasciatus Peryassú, A Folha Med., iv, 75, 1923.
Culex quinquefasciatus Dyar, Ins. Ins. Mens., xiii, 21, 1925.
Culex quinquefasciatus Dyar, Ins. Ins. Mens., xiii, 28, 1925.
Culex (Culex) quinquefasciatus Dyar, Ins. Ins. Mens., xiii, 165, 1925.
Culex (Culex) quinquefasciatus Dyar, Ins. Ins. Mens., xiii, 213, 1925.
Culex fatigans and *barbarus* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 221 and 241, 1925.
Culex (Culex) quinquefasciatus Freeborn, Mosq. of Calif., 431, 1926.
Culex quinquefasciatus Stiles, Hall, and Hitchins, Dengue (Manila, P. I.), 309, 1926.

Female—Proboscis moderate, black. Occiput dark brown, with narrow, curved, white scales. Mesonotum brown, with coarse, narrow, curved, light creamy brown scales; pleuræ pale brown. Abdomen black, the segments with basal white bands, constricted toward the sides and cut off from the lateral spots; venter largely pale. Legs black, femora pale below, femora and tibiæ with slight whitish tips. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, whitish beneath, except toward the tips of the joints. Abdominal bands complete, not broken at the sides. Hypopygium (Plate CII, Fig. 357): Side-piece conical, with large basal excavation, the lobe at the outer fourth, bearing three rods, two small setæ, a filament, a leaf, and a seta. Tenth sternites elongate, with very small basal arm at right angles, the tip tufted with fine spines. Ninth tergites represented by rows of four or five setæ. Mesosomal plate small, forming a long, tapering pointed cone, from the base of which arises a long broad band-like tooth, exceeding the other parts.

Larva (Plate CII, Fig. 357)—Head rounded, bulging at the sides; antennæ large, a tuft at outer third, the part beyond slender, basal part spinulated; head-hairs multiple. Lateral comb of the eighth segment of many scales in a patch. Air-tube about four times as long as wide, tapered outwardly; pecten reaching beyond the basal third, followed by four hair-tufts, the subapical one moved laterad out of line, basal two five-haired, outer two two-haired. Anal segment about as long as wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a long hair and a long and a short one on each side; a single small lateral hair. Anal gills twice as long as the segment, ensiform.

Warmer regions of the world between the thirty-ninth parallel of latitude north and south.

The larvæ occur largely in the water in artificial receptacles, being only rarely found in ground-pools. The species is domesticated and infests houses, biting at night. A very troublesome species, but not known as the vector of any specific disease of man other than filariasis.

Say's name of *quinquefasciatus* is the oldest for this species; but as Say says "thorax clothed with cinereous hair" it was claimed by some that he was describing an *Anopheles*. It was shown that the short legs mentioned negatived this. In the Monograph we show (iii, 358, 1915) that what were

apparently Say's original specimens are a *Culex*. Latterly Dr. Bonne, in what we hope will prove the last attempt to discredit the name, points out that a *Culex* would probably not be common on the Mississippi River, as Say says of his species. I took the pains to cross the Mississippi at night above New Orleans, and sure enough, was attacked by swarms of *Anopheles* and no *Culex*. The explanation is that Say did not distinguish between the specimens which he took in the city, which he described, and those that bit him at night on the river. If he had had specimens of *Anopheles quadrimaculatus* before him he would never have proposed the name *"quinquefasciatus"* for them, whereas the five white abdominal bands of the *Culex* are a prominent feature. It seems to the writer that the application of this name is not surrounded with any doubt whatever.

CULEX (CULEX) PIPIENS Linnæus

CULEX PIPIENS Linnæus Syst. Nat., Ed. x, 602, 1758.
CULEX FASCIATUS Müller, Faun. Ins. Fridrichdal., 87, 1764.
CULEX MOLESTUS Forskål, Desc. Anim., 85, 1775.
CULEX LUTEUS Meigen, Klass., i, 6, 1804.
CULEX DOMESTICUS Germar, Reise nach Dalm., 290, 1817.
CULEX RUFUS Meigen, Syst. Beschr., i, 9, 1818.
CULEX BICOLOR Meigen, Syst. Beschr., i, 9, 1818.
CULEX MERIDIONALIS Leach, Zool. Journ., ii, 292, 1825.
CULEX MARGINALIS Stephens, Zool. Journ., i, 455, 1825.
CULEX CONSOBRINUS Robineau-Desvoidy, Mem. Soc. d'Hist. Nat. Paris, iii, 408, 1827.
CULEX THORACICUS Robineau-Desvoidy, Mem. Soc. d'Hist. Nat. Paris, iii, 409, 1827.
CULEX CALCITRANS Robineau-Desvoidy, Mem. Soc. d'Hist. Nat. Paris, 409, 1827.
CULEX PALLIPES Waltl, Reise Tyrol, ii, 110, 1835.
CULEX PALLIPES Macquart, Dipt. Exot., i, 33, 1838.
CULEX PALLIPES Meigen, Syst. Beschr., vii, 1, 1838.
CULEX RUFINUS Bigot, Expl. Scient. Tunis. Dipt., 7, 1888.
CULEX AGILIS Bigot, Ann. Soc. Ent. Fr. (6), ix, Bull. cxii, 1889.
CULEX PHYTOPHAGUS Ficalbi, Bull. Ent. Soc. Ital., xxi, 126, 1890.
CULEX HÆMATOPHAGUS Ficalbi, Bull. Ent. Soc. Ital., xxv, 143, 1893.
CULEX PALLENS Coquillett, Proc. U. S. Nat. Mus., xxi, 303, 1898.
CULEX MELANORHINUS Giles, Gn. or Mosq., 342, 1900.
Culex nigritulus Theobald (not Zetterstedt), Mon. Culic., ii, 140, 1901.
CULEX VARIOANNULATUS Theobald, Mon. Culic., iii, 198, 1903.
CULEX AZORIENSIS Theobald, Mon. Culic., iii, 210, 1903.
CULEX LONGIFURCATUS Becker, Mitt. Zool. Mus. Berlin, ii, 68, 1904.
CULEX QUASIMODESTUS Theobald, Ann. Mus. Nat. Hung., iii, 88, 1905.
CULEX COMITATUS Dyar and Knab, Proc. Ent. Soc. Wash., xi, 35, 1909.
CULEX PIPIENS DOLIORUM Edwards, Entom., xlv, 263, 1912.
Culex pipiens and *comitatus* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 360 and 369, 1915.
Culex comitatus Dyar, Ins. Ins. Mens., iv, 47, 1916.
Culex (Culex) pipiens Dyar and Knab, Ins. Ins. Mens., v, 178, 1917.
Culex pipiens Dyar, Ins. Ins. Mens., vii, 86, 1919.
Culex (Culex) pipiens Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 75, 1921.
Culex (Culex) pipiens Dyar, Proc. U. S. Nat. Mus., lxii, 17, 1922.
Culex (Culex) pipiens Hearle, Nat. Res. Counc., Rept. No. 17, 49, 1926.
Culex (Culex) pipiens Freeborn, Mosq. of Calif., 429, 1926.

Female—Proboscis moderate, black. Occiput black, with narrow, curved, light-brownish scales, an area of white ones behind the eyes. Mesonotum brown, with dense, rather coarse, bronzy brown, narrow, curved scales; pleuræ pale brown. Abdomen black with basal segmental white bands,

narrowed at the sides but not cut off, narrowly joining the lateral patches; venter largely pale. Legs black with bronzy reflections, femora pale below; femora and tibiæ with indistinct whitish tips. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, marked with whitish below, especially at middle of long joint and bases of last two. Hypopygium (Plate CII, Fig. 358): Side-piece conical, with large basal excavation, the lobe at the outer fourth, bearing three rods, two setæ, and a filament, a leaf, and a seta. Clasper curved, flattened on the outer half, with subterminal appendiculate spine. Tenth sternites with small, narrow, basal projection, tip densely tufted with fine spines. Ninth tergites represented by rows of half a dozen setæ. Mesosomal plate with two small broad teeth, a long cylindrical arm with truncate tip and a broad tooth from the base, ribband-shaped, outcurved.

Larva (Plate CII, Fig. 358)—Head rounded, wider than long, bulging at the sides; antennæ large, a tuft at outer third, the part beyond slender, basal part spinulated; head-hairs multiple. Lateral comb of the eighth segment of many narrow spines in a patch five rows deep. Air-tube five times as long as wide, slightly fusiform, pecten on basal third, followed by four tufts, the subapical one moved laterad out of line, two basal tufts in fours, outer two double. Anal segment as long as wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a nearly equally long and shorter one on each side. Anal gills longer than the segment, rather bluntly rounded.

Eastern North America from the thirty-eighth parallel of north latitude to southern Canada; Pacific Coast, California to British Columbia; South America south of the thirty-ninth parallel of south latitude; Europe.

The larvæ occur largely in the water in artificial receptacles, being only rarely found in ground-pools. The species is domesticated and infests houses, biting at night. A very troublessome species, but not known as the vector of any specific disease of man.

CULEX (CULEX) TARSALIS Coquillett

CULEX TARSALIS Coquillett, Can. Ent., xxviii, 43, 1896.
CULEX WILLISTONI Giles, Handb. Gn. or Mosq., 281, 1900.
CULEX AFFINIS Adams, Kans. Univ. Bull., xx, 25, 1903.
CULEX KELLOGGII Theobald, Can. Ent., xxv, 211, 1903.
CULEX PEUS Speiser, Insektenb., xxi, 148, 1904.
Culex kelloggii Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 165, 1911.
Culex tarsalis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 230. 1915.
Culex tarsalis Dyar, Ins. Ins. Mens., iv, 46, 1916.
Culex (Culex) tarsalis Dyar and Knab, Ins. Ins. Mens., v, 174, 1917.
Culex (Culex) tarsalis Dyar, Ins. Ins. Mens., v, 21, 1917.
Culex (Culex) tarsalis Dyar, Ins. Ins. Mens., v, 101, 1917.
Culex (Culex) tarsalis Dyar, Ins. Ins. Mens., vi, 96, 1918.
Culex (Culex) tarsalis Dyar, Ins. Ins. Mens., ix, 32, 1921.
Culex (Culex) tarsalis Dyar, Trans. Roy. Can. Inst., Toronto, xiii, pt. 1, 74, 1921.
Culex tarsalis Dyar, Proc. U. S. Nat. Mus., lxii, 21, 1922.
Culex tarsalis Dyar, Ins. Ins. Mens., xi, 45, 1923.
Culex tarsalis Dyar, Ins. Ins. Mens., xii, 46, 1924.
Culex tarsalis Hearle, Nat. Res. Counc., Rept. No. 17, 42, 1926.
Culex (Culex) tarsalis Freeborn, Mosq. of Calif., 435, 1926.

Female—Proboscis moderate, black, a white ring beyond the middle. Occiput blackish, with narrow, curved, bronzy brown scales over the vertex, black ones below and white along the margin of the eyes and below. Mesonotum dark brown, with narrow, curved, dark bronzy scales, mixed with white ones, especially in two median spots and streaks posteriorly of them; pleuræ dark brown. Abdomen black, with basal segmental white bands, venter largely pale, with more or less developed angular segmental marks, the cusps pointing forward. Legs black, femora pale below; femora and tibiæ white-lined on the side and with white tips; tarsi with broad white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis, black, with small white rings at middle of long joint and bases of last two. Hypopygium (Plate XCIII, Fig. 327): Side-piece conical, with large basal excavation, the lobe at outer fourth, bearing three rods, a filament, a small leaf, and a seta. Clasper curved, flattened on outer half, with appendiculate subapical spine. Tenth sternites stout and well chitinized, narrow, with long, recurved basal arm, the tip tufted with fine spines within, a row of some six very coarse, flattened ones outwardly. Ninth tergites represented by a row of about five setæ. Mesosomal plate with the upper limb narrow, long, somewhat fimbriate at tip, lower limb thumb-shaped, three claw-like teeth between, and a long horn from the base exceeding the teeth.

Larva (Plate XCIII, Fig. 327)—Head rounded, wider than long, bulging at the sides; antennæ large, a tuft at outer third, the part beyond more slender, basal part spined; head-hairs multiple. Lateral comb of the eighth segment of many scales in a patch. Air-tube slender, uniform, about four times as long as wide, pecten on basal third, followed by five paired tufts, the basal one within the pecten, approximate posteriorly and irregularly inserted, none displaced, or the subapical one moved laterad. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short one on each side. Anal gills as long as the segment, bluntly pointed.

North America, from the prairies to the Pacific, Illinois, Minnesota, and Manitoba to Texas, British Columbia to Southern California and Mexico City.

The larvæ inhabit ground-pools of a more or less permanent nature, not flood-pools. The adults enter houses to some extent and in such cases are troublesome; but they are not as persistent either in entering or in biting as *quinquefasciatus* and *pipiens* of the East. A single specimen of the adult was sent me from Quantico, Virginia, October 18, 1926, by Dr. S. S. Cook.

CULEX (CULEX) DUPLICATOR Dyar and Knab

CULEX DUPLICATOR Dyar and Knab, Smith. Misc. Colls., Quart. Iss., lii, 258, 1909.
Culex duplicator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 235, 1915.
Culex (Culex) duplicator Dyar, Ins. Ins. Mens., vi, 100, 1918.
Culex (Culex) duplicator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 239, 1925.

Female—Proboscis moderate, black, with a white band somewhat beyond the middle. Occiput brown, with narrow, curved, pale golden scales on the vertex, white ones on the sides and behind the eyes. Mesonotum dark brown, with brown, narrow, curved scales; pleuræ pale or green. Abdomen black, the segments with narrow white basal bands, widening on the sides; venter largely whitish. Legs black, the femora pale below; femora and

tibiæ with whitish tips, the tibiæ white-lined; tarsi with white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black, with white rings at middle of long joint and at bases of last two. Hypopygium (Plate XCVI, Fig. 336): Side-piece conical, with moderate basal excavation, the lobe somewhat beyond the middle, bearing three rods at its summit, a patch of setæ at its inner base and a smaller patch at its outer summit. Clasper curved, apical half flattened, with appendiculate subterminal spine. Tenth sternites thin and membranous, the tip covered with small, sparse spines; a stout, curved basal arm, within it a small hairy lobe. Ninth tergites elliptical, connected, with many setæ at least three rows deep. Mesosomal plate with central elliptical head, spinose and lamellate, an upper curved denticulate arm and a large central angular plate, pointed at tip and with small dorsal projection.

Larva—Unknown.

Haiti and Santo Domingo.

I have received only twice this peculiar endemic species, neither time with the larva. Specimens were bred from ground-pools.

CULEX (CULEX) BONNEÆ Dyar and Knab

CULEX BONNEÆ Dyar and Knab, Ins. Ins. Mens., vii, 3, 1919.

Culex (Culex) bonneæ Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 237, 1925.

Female—Proboscis moderate, black. Occiput black, with narrow, curved, whitish scales, white ones behind the eyes and below. Mesonotum brown, with narrow, curved, whitish scales (all the specimens imperfect); pleuræ pale. Abdomen black, with lateral segmental basal white spots, larger on the posterior segments; venter largely pale. Legs black, femora pale below; femora and tibiæ with slight whitish tips. Wing-scales narrow.

Male—Coloration of the female. Proboscis pale below beyond the middle. Palpi exceeding the proboscis by more than the length of the last joint, black. Hypopygium (Plate XCVI, Fig. 337): Side-piece conical, with large basal excavation, the lobe at outer third, broad, indistinctly divided, the inner division bearing three rods, the outer division a group of some six rod-like setæ. Clasper curved, flattened on outer half, with subterminal appendiculate spine. Tenth sternites membranous, with weak sparse spines, a short, coiled basal arm. Ninth tergites rudimentary. Mesosomal plate with rounded elliptical head, denticulate and laminate, upper arm long, slender, angled; a slender horn from base exceeding the plate.

Larva (Plate XCVI, Fig. 337)—Head rounded, slightly bulging at the sides; antennæ not as long as head, a tuft beyond the middle, the part beyond it more slender, basal part spinulated. Lateral comb of the eighth segment of scales in a patch three rows deep. Skin conspicuously pilose. Air-tube short, about twice as long as wide, tapered on outer half; pecten running nearly to the tip and becoming long outwardly; about five tufts on posterior margin within the pecten. Anal segment somewhat longer than wide, ringed by the plate, the ventral brush posterior; dorsal tuft a long hair and a rather long and a short one on each side; a single small lateral hair. Anal gills longer than the segment, somewhat rounded at tip.

Surinam.

The larvæ live in water in tree-holes.

CULEX (CULEX) SPINOSUS Lutz

CULEX SPINOSUS Lutz in Bourroul, Mosq. do Bras., 44, 1904.
Culex spinosus Theobald, Mon. Culic., iv, 455, 1907.
Culex spinosus Peryassú, Os Culic. do Braz., 205 and 349, fig. 45, 1908.
Culex spinosus Theobald, Mon. Culic., v, 289, 1910.
Culex spinosus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 171, 1911.

Female—Proboscis moderate, black. Occiput dark brown, with narrow, curved, light bronzy scales. Mesonotum brown, with dark, golden brown, narrow, curved scales; pleuræ pale. Abdomen black, the segments with small basal lateral spots; venter largely pale. Legs black with bronzy reflection, femora pale below; femora and tibiæ narrowly whitish at tip. Wing-scales narrow.

Male—Coloration of the female. Proboscis with a white ring beyond the middle, whitish rings at middle of long joint and bases of last two. Hypopygium unknown.

Brazil.

Larva—Air-tube nearly nine times as long as wide, narrow, with a crown of spines near the apex.

The larvæ were found in water in tree-holes and the leaf-bases of Bromeliaceæ. I have a single female received from Dr. A. Lutz many years ago. Lutz sent Theobald a male, but his description of the hypopygium is incomplete, possibly indicating a relationship to *stenolepis*.

CULEX (CULEX) SALTANENSIS Dyar

CULEX (CULEX) SALTANENSIS Dyar, new species (here published).

Female—Unknown.

Male—Tarsi dark, with minute white rings at the joints. Proboscis with a small white ring near the middle. Palpi with white marks at middle of long joint and at bases of the last two. Hypopygium: Side-piece moderate, curved, small and conical at tip; lobe at outer third, produced, rounded, similar to but smaller than the tip of the side-piece beyond it; bearing two short, pointed rods at tip and a number of setæ on the shaft, those on the basal side scattered, those on the distal side fine, expanded claw-like, arranged in a fan-shaped row. Clasper thick, curved, tapering outwardly and with a slightly subapical rather long spine. Tenth sternites very weak, with a tuft of weak transparent spines, but with a long, recurved, sharply pointed, and chitinized basal arm. Mesosomal plate short, quadrate, the upper angle blunt, finely striate, and with many dense, minute teeth; lower angle shortly thumb-shaped; basal horn large, produced into two angles at tip, T-shaped.

Larva—Unknown.

Argentina.

One male, mounted on a slide, Campo Santa de Salta, Argentina, May 12, 1927 (M. Kisliuk, jr.), caught in a field together with four males of *Culex quinquefasciatus* Say.

CULEX (CULEX) MAXI Dyar

CULEX (CULEX) MAXI Dyar, new species (here published).

Female—Unknown.

Male—Tarsi dark, with minute white rings at the joints; proboscis with a white band beyond the middle; palpi with white rings at middle of the

long joint and bases of the last two. Hypopygium: Side-piece tapering outwardly, rather narrow at tip, rounded; lobe beyond the middle, prominent, condensed, with five long, slender appendages, three being the usual rods, the other two slenderer, but equally long; a group of long, fine setæ apically. Clasper stout, curved and narrowed at tip, with appendiculate slightly subterminal spine. Tenth sternites large, but very weak, the spined part small, thin, capitate, but the basal arm very long and darkly chitinized. Ninth tergites each a distinct ridge of chitin, bearing about eight fine setæ from distinct tubercles. Mesosomal plate stoutly fan-shaped, with a group of five nearly even, stout teeth centrally; upper limb as long as the teeth, flattened, bluntly dentiform; lower limb thumb-shaped, apart; a long, pointed horn from the base, equaling the teeth, or exceeding them, apart.

Larva—Unknown.

Argentina.

Two males, in extremely poor state, but the hypopygium is clear. Tucumán, Argentina, May 17, 1927, and San Pedro, Argentina, June 11, 1927 (M. Kisliuk, jr.). Belongs evidently in the *coronator* group.

CULEX (CULEX) CORONATOR Dyar and Knab

Culex cingulatus Theobald (not Fabricius), Mon. Culic., ii, 5, 1901.
Culex cingulatus Lutz in Bourroul (not Fabricius), Mosq. do Bras., 41, 1904.
Culex cingulatus Blanchard (not Fabricius) Les Moust., 301, 1905.
CULEX CORONATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 215, 1906.
Culex cingulatus Peryassú (not Fabricius) Os Culic. do Braz., 200, 1908.
Culex cingulatus Surcouf and Gonzales Rincones (not Fabricius), Ess. Dipt. Vul. Venez., 183, 1911.
Culex coronator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 286, 1915.
CULEX OUSQUA Dyar, Ins. Ins. Mens., vi, 99, 1918.
CULEX USQUATUS Dyar, Ins. Ins. Mens., vi, 122, 1918.
Culex (Culex) coronator Dyar, Ins. Ins. Mens., vi, 99, 1918.
Culex (Culex) coronator Dyar, Ins. Ins. Mens., xi, 34, 1921.
CULEX USQUATISSIMUS Dyar, Ins. Ins. Mens., x, 19, 1922.
Culex coronator Dyar, Ins. Ins. Mens., x, 18, 1922.
Culex ousqua Dyar, Ins. Ins. Mens., x, 19, 1922.
Culex (Culex) coronator Dyar, Proc. U. S. Nat. Mus., lxii, 16, 1922.
CULEX CAMPOSI Dyar, Ins. Ins. Mens., xiii, 28, 1925.
Culex (Culex) coronator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 226, 1925.
Culex coronator Dyar, Ins. Ins. Mens., xiii, 21, 1925.
Culex coronator Dyar, Ins. Ins. Mens., xiii, 28, 1925.
Culex (Culex) coronator Root, Am. Journ. Hyg., vii, 576, 1927.

Female—Proboscis moderate, black, broadly white centrally below. Occiput black, with narrow, curved, pale bronzy and white scales on the vertex, white ones behind the eyes and below. Mesonotum brown, with narrow, curved, bronzy brown scales, sometimes variegated with whitish scales, especially in two median dots; pleuræ dull brownish. Abdomen black, the segments with narrow, basal white bands, widening on the sides, venter largely whitish. Legs black, femora white below; femora and tibiæ with small whitish tips; tarsi with white rings involving both ends of the joints, varying in width, generally rather narrow. Wing-scales narrow.

Male—Coloration of the female. Proboscis with a narrow white ring. Palpi exceeding the proboscis by more than the length of the last joint,

black, with white rings at middle of long joint and bases of the last two. Hypopygium (Plate XCV, Fig. 333): Side-piece conical, with large basal excavation, the lobe about the outer fourth, entire or indistinctly divided, with three rods, sometimes supplemented by additional setæ basally, outwardly with a group of about six rod-like setæ. Clasper curved, flattened on outer half, with appendiculate subterminal spine. Tenth sternites membranous, with small remote spines, a long, completely recurved arm at base. Ninth tergites a long row of setæ on each side. Mesosomal plate with the upper arm bent at right angles, long and beak-like, lower thumb-shaped; centrally a mass of about six, rather long and equal teeth, a long, wide horn from within, much exceeding the plate.

Larva (Plate XCV, Fig. 333)—Head rounded, wider than long, bulging on the sides; antennæ long, a tuft at outer third, the part beyond slender, basal part spinulated; head-hairs, upper seven, lower five, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a patch. Air-tube about eight times as long as wide, slender, straight, with a crown of spikes subapically; pecten on basal fourth, followed by four two-haired tufts, the two middle ones moved laterad out of line. Anal segment as long as wide, ringed by the plate, the ventral brush on posterior half; dorsal tuft a long hair and a long and two short ones on each side; lateral tuft small, double. Anal gills shorter than the segment, pointed.

Texas, Mexico, Central America, Panama, Ecuador, Colombia, Venezuela, Trinidad, the Guianas, Brazil, Argentina.

The larvæ occur in ground-pools, and though the species is very common it has never been recorded to bite man. Occasionally the larvæ occur in tree-holes and similar locations. Mr. Max Kisliuk, jr., caught undoubted specimens of this species in Argentina, May 4, 1927, on a train going from Tucumán to Jujuy.

CULEX (CULEX) SURINAMENSIS Dyar

CULEX (CULEX) SURINAMENSIS Dyar, Ins. Ins. Mens., vi, 121, 1918.
Culex (Culex) surinamensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 230, 1925.

Female—Proboscis moderate, black, broadly white below centrally. Occiput dark brown, with narrow, curved, light bronzy scales. White ones behind the eyes and below. Mesonotum dark brown, with narrow, curved, bronzy brown scales, sometimes slightly variegated with whitish ones; pleuræ dull brown. Abdomen black, the segments with white basal bands, widening on the sides; venter largely pale. Legs black, the femora white below; femora and tibiæ with small whitish apices; tarsi with small white rings involving both ends of the joints. Wing-scales narrow.

Male—Coloration of the female. Proboscis with a white ring beyond the middle. Palpi exceeding the proboscis by more than the length of the last joint, with white rings at middle of long joint and bases of the last two. Hypopygium (Plate XCVI, Fig. 325): Side-piece conical, with large basal excavation, indistinctly divided, the inner part with three rods, the outer with about six rod-like setæ. Clasper curved, flattened on the outer half with appendiculate subterminal spine. Tenth sternites thin and membranous, with small spinules, a long recurved arm at base. Ninth tergites a row of three or four small setæ on each side. Mesosomal plate large, the upper arm a small thumb roundedly recurved, lower arm large and pointed, centrally group of rather large subequal teeth; a long, wide horn from the base much exceeds the plate.

Larva (Plate XCVI, Fig. 335)—Head rounded, wider than long, bulging on the sides; antennæ long, a tuft at outer third, the part beyond slender, basal part spined; head-hairs (indefinite in Dr. Bonne's sketch) probably in seven and five, anteantennal tuft multiple. Lateral comb of the eighth segment of many narrow scales in a patch. Skin distinctly pilose. Air-tube rather stout, straight, about six times as long as wide, the pecten on basal third, followed by five small five-haired tufts in line, the apical one smaller and fewer haired. Anal segment as long as wide, ringed by the plate, ventral brush on posterior half; dorsal tuft of a long hair and a long and two short hairs on each side. Anal gills rather longer than the segment, pointed at tip.

Surinam and French Guiana.

The larvæ occur in ground-pools, especially small ones, such as rock-holes and artificial receptacles.

CULEX (CULEX) BREVISPINOSUS Bonne-Wepster and Bonne

CULEX (CULEX) BREVISPINOSUS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 171, 1920.

Culex (Culex) brevispinosus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 234, 1925.

Female—Proboscis moderate, black. Occiput black, with narrow, curved, pale bronzy scales, white ones behind the eyes and below. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ pale. Abdomen black, with bronzy reflection, the sides with small, pale, basal segmental spots; venter largely pale, the segments apically more or less blackish. Legs black with bronzy reflection, femora whitish below; femora and tibiæ narrowly white at apices; tarsi with minute whitish rings at the joints. Wing-scales narrow.

Male—Coloration of the female. Proboscis with a faint pale area beyond the middle. Palpi exceeding the proboscis by more than the length of the last joint, black, with hardly perceptible paling at middle of long joint and bases of last two. Abdomen with basal segmental white bands. Hypopygium (Plate XCV, Fig. 334): Side-piece conical, with large basal excavation, the lobe at outer fourth, long, scarcely divided, three rods within, followed by two or three rod-like setæ and a large number of fine setæ. Clasper curved, flattened on outer half, with appendiculate subterminal spine. Tenth sternites membranous, with fine, small spines at tip, a large, stout, recurved basal arm. Ninth tergites rudimentary. Mesosomal plate rather high, the tip erect, upper lobe short, broad, rounded transverse, lower limb triangular, obscure; six separated teeth along the oblique margin, a stout tooth toward the base exceeding the plate.

Larva (Plate XCV, Fig. 334)—Head rounded, wider than long, bulging at the sides; antennæ long, a tuft at outer third, the part beyond slender, basal part spinulated; head-hairs in threes, anteantennal tuft multiple. Lateral comb of the eighth segment of narrow scales in a rather small patch. Skin conspicuously pilose. Air-tube very long and tapered to a sharp point, about twelve times as long as wide, a small crown of spikes subapically; pecten on the basal fifth, followed by three distant minute tufts, several-haired. Anal segment as long as wide, ringed by plate, ventral brush on posterior half; dorsal tuft a long hair and two short ones on each side. Anal gills longer than the segment, pointed.

Surinam.

The larvæ were found in a pool, a tree-hole, and an old boat.

CULEX (CULEX) SPHINX Howard, Dyar, and Knab

CULEX SPHINX Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 301, 1915.
Culex sphinx Dyar and Knab, Ins. Ins. Mens., iii, 114, 1915.
Culex (Culex) sphinx Dyar, Ins. Ins. Mens., vi, 100, 1918.
Culex (Culex) sphinx Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 221, 1925.

Female—Proboscis moderate, black. Occiput black, with narrow, curved, dull whitish scales, white ones below behind the eyes. Mesonotum brown, with narrow, curved, bronzy brown scales; pleuræ pale or greenish. Abdomen with a broad lateral band of white scales, widening posteriorly on the segments; venter pale. Legs black with bronzy reflection, femora whitish below; femora and tibiæ with small whitish tips. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by about half the length of the last joint, black. Hypopygium (Plate CII, Fig. 359): Side-piece conical, with moderate basal excavation; lobe rather widely divided, the inner division about the middle of side-piece bearing three rods, the two outermost curved and with slightly expanded tips; the outer division bears three filaments and a narrow leaf. Tenth sternites with strongly tufted tips, three or four of the outer spines stout; a long, recurved basal arm. Ninth tergites quadrately elevated, bearing a row of about ten setæ on the margin. Mesosomal plate quadrate, the upper limb membranous, denticulate, inclosing a group of four small teeth, a large infuscated horn nearly on the margin, lower limb pointed.

Larva (Plate CII, Fig. 359)—Head wider than long, rounded; antennæ large, rather slender, a hair-tuft at outer third, the part beyond more slender, basal part spined. Head-hairs, upper in four, lower in three, anteantennal tuft multiple. Lateral comb of the eighth segment of many narrow scales in a patch. Air-tube rather stout, subfusiform, about six times as long as wide; pecten on the basal two-fifths, followed by three long, paired tufts, the middle one moved laterad out of line, the tufts two- or three-haired. Anal segment slightly longer than wide, ringed by the plate; dorsal tuft a long hair and a long and two short ones on each side; a single small lateral hair. Anal gills shorter than the segment, pointed.

Bahamas (Nassau).

The larvæ occur in pools in coral rock.

CULEX (CULEX) INFLICTUS Theobald

CULEX INFLICTUS Theobald, Mon. Culic., ii, 115, 1901.
CULEX SCHOLASTICUS Theobald, Mon. Culic., ii, 120, 1901.
CULEX EXTRICATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 211, 1906.
Culex inflictus and *scholasticus,* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 179 and 181, 1911.
Culex extricator, inflictus, and *scholasticus* Howard, Dyar, and Knab, iii, 325, 406, and 407, 1915.
Culex (Culex) extricator Dyar, Ins. Ins. Mens., vi, 100, 1918.
Culex scholasticus and *inflictus* Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 18 and 19, 1921.
Culex (Culex) inflictus Dyar, Ins. Ins. Mens., ix, 30, 1921.
Culex (Culex) inflictus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 223, 1925.

Female—Proboscis moderate, black. Occiput with narrow curved, pale scales, white ones behind the eyes below. Mesonotum blackish, with dark

brown, narrow, curved scales; pleuræ dark brown. Abdomen black, the sides with basal segmental white spots; venter largely pale, the segments with blackish apices. Legs black, with bronzy reflection, femora pale below, femora and tibiæ with faint whitish tips. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black. Hypopygium (Plate XCIV, Fig. 329): Side-piece conical, with large basal excavation; lobe a little beyond the middle, slender, bearing three long rods; the inner shorter, the outer two with bent tips; half way between this and the apex is a large leaf. Clasper curved, flattened on outer half, with long appendiculate subterminal spine. Tenth sternites moderate, tufted with small, blunt, remote spines, a long, curved horn at the base. Ninth tergites rudimentary, bearing a few small setæ. Mesosomal plate cup-shaped, without arms, about seven sharp subequal teeth on the surface, a long tooth from the base, exceeding the plate by its own length.

Larva (Plate XCIV, Fig. 329)—Head rounded, slightly wider than long; antennæ long, a tuft at outer third, the part beyond more slender, basal part spined; head-hairs, upper in four, lower in three, anteantennal tuft multiple. Lateral comb of the eighth segment of many narrow scales in a patch. Air-tube about six times as long as wide, slightly fusiform; pecten on less than the basal third, followed by three three- and two-haired tufts, the middle one moved slightly laterad out of line. Anal segment slightly longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a long and a short hair on each side; lateral hair single, small. Anal gills as long as the segment, rather wide and bluntly rounded.

Costa Rica, Panama, Colombia, Venezuela, Trinidad.

A coastal species, the larvæ occurring in the water in crab-holes and ground-holes of similar character.

CULEX (?CULEX) ALBIPES Lutz

CULEX ALBIPES Lutz in Bourroul, Mosq. do Bras., 6, 1904.
Culex albipes Theobald, Mon. Culic., iv, 406, 1907.
Culex albipes Peryassú, Os Culic. do Braz., 194, 1908.
Culex albipes Theobald, Mon. Culic., v, 355, 1910.
Culex albipes Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 184, 1911.

Female—Proboscis moderate, swollen at tip, black. Occiput with narrow, curved, cream-colored scales, flat white ones on the sides. Mesonotum yellowish gray, with dark patches with narrow, curved scales which appear whitish, golden, or even dark; pleuræ white, with two narrow oblique lines. Abdomen black, the sides with basal segmental white patches; venter largely pale, the segments with pointed dark bands. Legs black, femora yellowish below; tarsi with white rings generally including the articulations; last two hind tarsals yellowish white, with some dark scales, principally on the apex of the last and on the underside of the apex of the third, where they nearly form dark patches. Wing-scales, outstanding ones long and narrow, appressed scales wider.

Male—Unknown.

Larva—Unknown.

Brazil (State of Bahia).

The adult was bred from a larva found in water in the leaf-bases of Bromeliaceæ. This species is known to me only by description. I can not hazard a guess as to its correct position.

Section NEOCULEX

CULEX (CULEX) APICALIS Adams

CULEX APICALIS Adams, Kans. Univ. Sci. Bull., ii, 26, 1903.
CULEX SERGENTI Theobald, Mon. Culic., iii, 218, 1903.
CULEX SAXATILIS Grossback, Can. Ent., xxxvii, 360, 1905.
CULEX FRICKII Ludlow, Can. Ent., xxxviii, 132, 1906.
Culex territans Howard, Dyar, and Knab (not Walker), Mosq. No. and Cent. Am. and W. I., iii, 293, 1915.
Culex territans Dyar, Ins. Ins. Mens., iv, 48, 1916.
Culex saxatilis Dyar, Ins. Ins. Mens., v, 21, 1917.
Culex saxatilis Dyar, Ins. Ins. Mens., v, 110, 1917.
Culex (Neoculex) saxatilis Dyar and Knab, Ins. Ins. Mens., v, 173, 1917.
Culex (Neoculex) saxatilis Dyar, Ins. Ins. Mens., vi, 100, 1918.
Culex saxatilis Dyar, Ins. Ins. Mens., vii, 36, 1919.
CULEX PYRENAICUS Brolemann, Ann. Soc. Ent. Fr., lxxxvii, 427, 1919.
Culex apicalis Edwards, Bull. Ent. Res., xii, 336, 1921.
Culex (Neoculex) testaceus Dyar (not Van der Wulp), Trans. Royal Can. Inst., Toronto, xiii, Pt. 1, 76, 1921.
Culex testacus Hearle (not Van der Wulp), Nat. Res. Counc., Rept. No. 17, 47, 1926.
Culex (Neoculex) apicalis Freeborn, Mosq. of Calif., 425, 1926.

Female—Proboscis moderate, black. Occiput black, with narrow curved whitish scales. Mesonotum dark brown, with pale brown to whitish narrow curved scales; abdomen black, the segments with apical white bands, widening on the sides; venter whitish. Legs black with bronzy reflection, femora pale beneath; femora and tibiæ with slight whitish apices. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black. Hypopygium (Plate CIII, Fig. 360): Side-piece conical, with large basal excavation, the lobe at outer fourth obsoletely divided, the inner division bearing two rods with curved distorted tips; outer division with about six blade-like filaments and a long, stout seta on the side. Clasper curved, outer half flattened, with appendiculate subapical spine. Tenth sternites membranous, broad, a little thickened on inner margin, the tip with fine spines arranged in a nearly single row, the two or three inner ones stouter and tooth-like. Ninth tergites two small, remote lobes with several fine setæ from tubercular bases. Mesosomal plate simple, with spinose-denticulate tip, the pair connected by a narrow bridge at outer third.

Larva (Plate CIII, Fig. 360)—Head rounded quadrate, wider than long, bulging at the sides. Antennæ large, a tuft at the outer third, the part beyond slender, basal part spinulated; head-hairs single, anteantennal tuft multiple. Lateral comb of the eighth segment of many scales in a patch. Air-tube about nine times as long as wide, tapered outwardly and a little flared at tip, the pecten not quite reaching the basal third, followed by four small hair-tufts along the posterior margin, running from five-haired at base to two-haired in the last tuft. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a tuft of four moderate ones on each side. Anal gills longer than the segment, rounded.

North America, Europe, and Asia.

The larvæ occur in various grassy pools and edges of ponds, becoming more abundant as the season advances, and can be found anywhere in Canada or the United States in suitable shaded places. The adults have been observed to bite cold-blooded animals, such as frogs and snakes. They do not attack man.

CULEX (CULEX) DERIVATOR Dyar and Knab

CULEX DERIVATOR Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 216, 1906.
Culex derivator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., 999, 290, 1915.
Culex (Neoculex) derivator Dyar, Ins. Ins. Mens., vi, 100, 1918.

Female—Proboscis moderate, black. Occiput black, with narrow, curved, whitish scales. Mesonotum dark brown, with pale brown to whitish narrow, curved scales; pleuræ pale. Abdomen black, the segments laterally with apical white spots; venter whitish. Legs black with bronzy reflection, femora pale beneath; femora and tibiæ with slight whitish apices. Wing-scales narrow.

Male—Coloration of the female. Palpi exceeding the proboscis by more than the length of the last joint, black. Hypopygium (Plate CIII, Fig. 361): Side-piece conical, with large basal excavation, the lobe at outer fourth obsoletely divided, the inner division bearing two rods with curved, distorted tips; outer division with about six blade-like filaments and a long stout seta on the side. Clasper curved, outer half flattened, with appendiculate subapical spine. Tenth sternites membranous, broad, a little thickened on inner margin, the tip with fine spines arranged in a nearly single row, the two or three inner ones stouter and tooth-like. Ninth tergites two small, remote lobes with several fine setæ from tubercular bases. Mesosomal plate simple, with spinose-denticulate tip, the pair joined by a narrow bridge at outer third.

Larva (Plate CIII, Fig. 361)—Head rounded quadrate, wider than long, bulging at the sides; antennæ large, a tuft at the outer third, the part beyond slender, basal part spined; head-hairs in twos, anteantennal tuft multiple. Lateral comb of the eighth segment of many narrow spines in a patch. Air-tube long and slender, ten times as long as wide, the tip scarcely flared, pecten sparse and open, on the basal fourth, followed by four delicate tufts along the posterior line. Anal segment rather longer than wide, ringed by the plate, ventral brush on posterior half; dorsal tuft a long hair and three moderate hairs on each side; a single small lateral hair. Anal gills longer than the segment, tapered.

Mexico and Costa Rica.

The larvæ occur in grassy ground-pools. The adults probably have the same habits as *apicalis*. It is quite probable that *derivator* is only a race of *apicalis*.

Genus AËDEOMYIA Theobald

AËDEOMYIA Theobald, Mon. Culic., ii, 218, 1901.
Aëdeomyia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 484, 1924.
Aëdeomyia Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 481, 1925.

A small genus containing only one American species. The larvæ have the habits and appearance of the small *Culex* of the *Chæroporpa* group, occurring in pools containing much vegetation. The adults are readily recognized by the very scaly, spotted wings.

AËDEOMYIA SQUAMIPENNIS (Lynch Arribálzaga)

AËDES SQUAMIPENNIS Lynch Arribálzaga, El Nat. Argent., i, 151, 1878.
Aëdeomyia squamipennis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 221, 1911.
Aëdeomyia squamipennis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 894, 1917.
Aëdeomyia squamipennis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 482, 1925.
Aëdeomyia squamipennis Dyar, Ins. Ins. Mens., xiii, 24, 1925.
Aëdeomyia squamipennis Dyar, Ins. Ins. Mens., xiii, 31, 1925.
Aëdeomyia squamipennis Dyar, Ins. Ins. Mens., xiii, 215, 1925.

Female—Proboscis rather long, black, with a white ring beyond the middle. Occiput with broad, curved, white scales, flat black ones on the sides and below, mixed with some white ones. Mesonotum blackish, clothed with broad scales, white, stained with rusty in a broad central patch, black around the sides, variegated with two lines of white ones. Abdomen black, with broad white scales scattered along the sides; tending toward apical segmental patches; venter black, with white scales at apices of segments and some at bases also. Legs black, femora and tibiæ speckled with white; tarsi with white rings at the bases of the joints, involving slightly the apices also, large on the hind tarsi, the fourth hind tarsal black only at tip, the fifth all white. Wing-scales broad, rusty yellow, evenly mixed with black and a number of small white spots, several of the spots along the costa.

Male—Coloration of the female. The palpi are short as in the female. Hypopygium (Plate CIII, Fig. 362): Side-piece small, conical, with slight small basal excavation; a slight lobe near the middle composed of the tubercular bases of half a dozen thick spines. Clasper thick, uniform, with a large number of fine terminal spines. No basal parts, but a large mesosome composed of a broad cap supported by two thick and two thin rods.

Larva (Plate CIII, Fig. 362)—Head transverse, wider than long, slightly bulging on the sides; antennæ large, swollen, uniform, not longer than the head, a large tuft beyond the middle; head-hairs, upper in four, long, lower multiple, very short, anteantennal tuft multiple, long. Lateral comb of the eighth segment a row of some ten long, sharp spines along the margin of a semicircular plate. Air-tube about four times as long as wide, the tip narrowed and a little curved forward, pilose; no pecten, a large tuft posteriorly at the middle, a smaller one at apex, and a small tuft anteriorly beyond middle. Air-tube longer than wide, ringed by the plate, with many spines and long spikes dorsally; ventral brush posterior, feathered; a single long lateral hair.

Costa Rica, Panama, Ecuador, Colombia, Venezuela, the Guianas, Trinidad, and Brazil.

The larvæ occur in permanent water very full of vegetation, *Pistia*, *Azolla*, etc. A widespread tropical species. The adults apparently will bite, but are seldom numerous or troublesome.

Genus ORTHOPODOMYIA Theobald

ORTHOPODOMYIA Theobald, Entom., xxxvii, 236, 1904.
BANCROFTIA Lutz, in Bourroul, Mosq. do Brasil, 59, 1904.
PNEUMACULEX Dyar, Proc. Ent. Soc. Wash., vii, 45, 1905.
THOMASINA Newstead and Carter, Ann. Trop. Med. and Par., iv, 553, 1911.
Orthopodomyia Dyar, Proc. U. S. Nat. Mus,, lxii, 96, 1922.
Orthopodomyia Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 484, 1924.
Orthopodomyia Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 486, 1925.

A small genus, the adults of which are much mottled and marked, adapting them to concealment when resting on the trunks of trees. The larvæ live in tree-holes or water in plant-tissues, and are much preyed upon by *Megarhinus*. The species are all rare and of no economic importance.

Table of Species

ADULT

1. Mesonotum without narrow silvery lines . . . . . *fascipes* Coquillett
   Mesonotum with such lines 2
2. Wings with yellow spots . . . . . *phyllozoa* Dyar and Knab
   Wings with dark scales, without yellow spots 3
3. A long white streak at base of first vein . . . . . *albicosta* Lutz
   Without this character . . . . . *signifier* Coquillett

MALE HYPOPYGIUM

1. Tenth sternites pointed, the teeth appressed 2
   Tenth sternites three-toothed . . . . . *signifier* Coquillett
2. Spine of clasper sharp, pointed . . . . . *albicosta* Lutz
   Spine of clasper blunt or widened 3
3. Ninth tergites horn-like . . . . . *fascipes* Coquillett
   Ninth tergites with three teeth . . . . . *phyllozoa* Dyar and Knab

LARVA

1. Air-tube long and slender; comb of eighth segment with only a few scales in the second row . . . . . *phyllozoa* Dyar and Knab
   Air-tube short 2
2. Comb-scales of eighth segment in a single row . . . . . *albicosta* Lutz
   These scales in a double row 3
3. Sixth abdominal segment with a large dorsal plate reaching middle of side, *fascipes* Coquillett
   This segment with a small dorsal saddle only . . . . . *signifier* Coquillett

ORTHOPODOMYIA PHYLLOZOA (Dyar and Knab)

Mansonia phyllozoa Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 199, 1907.
Orthopodomyia phyllozoa Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iii, 879, 1915.
Orthopodomyia phyllozoa Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 489, 1925.

Female—Proboscis moderate, black, with a yellowish white mark at outer third and tip. Palpi half as long as the proboscis, black, with yellow scales near the middle. Occiput black with narrow, curved, white and yellowish scales. Mesonotum dark velvety brown, with two central bare lines; a lateral line of silvery scales with a central short branch and two posterior half lines, diverging at a slight angle. Abdomen black, the sides with mesial segmental, narrow, white patches; venter blackish-scaled. Legs black; femora largely yellowish, speckled with black; first tarsal joint black with yellow speckles, the remaining joints with white rings involving both ends of the joints, those on second and third tarsals large, the rest small. Wing-scales broadly ovate, subtruncate-tipped, mixed with narrow spine-like ones, black, spotted with yellowish white; five spots involving costa and

first vein, small ones at bases and tips of the fork-cells, bases of second to fourth, fork of fifth, and elsewhere.

Male—Coloration of the female. Proboscis with many yellow speckles. Palpi not quite as long as proboscis, black, with yellow scales at base and middle of long joint, the last two with small white tips. Hypopygium (Plate CIV, Fig. 363): Side-piece conical, with small basal excavation, the lobe bearing three stiff setæ and numerous small ones. Clasper slender, uniform, with long, stout, blunt terminal tooth. Tenth sternite a long, strong, curved tooth; mesosomal plate a stout, broad structure with three or four reversed teeth at its tip.

Larva (Plate CIV, Fig. 363)—Head rounded, rather wider than long; antennæ long, slender and uniform, a tuft before the middle; head-hairs very long, all multiple. A square dorsal plate on seventh segment; a narrow plate reaching well down the sides on the eighth; comb of the eighth segment a long row of short spines. Air-tube eight times as long as wide, slender, a large eight-haired tuft before the middle posteriorly. Anal segment longer than wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and a brush on each side; a small lateral tuft. Anal gills about as long as the segment, pointed.

Panama.

The larvæ live in the water in the leaf-bases of epiphytic Bromeliaceæ.

ORTHOPODOMYIA FASCIPES (Coquillett)

MANSONIA FASCIPES Coquillett, Proc. Ent. Soc. Wash., vii, 182, 1905.
MANSONIA LONGIPALPIS Newstead and Thomas, Ann. Trop. Med. and Par., iv, 145, 1910.
Orthopodomyia fascipes Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 882, 1917.
Orthopodomyia fascipes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 490, 1925.

Female—Proboscis moderate, black, speckled with yellow, a white mark at outer fourth. Palpi two-fifths as long as the proboscis, black, with white scales at tip and at joints. Occiput black, with rather broad, curved, whitish or yellowish stained scales, flat white ones below. Mesonotum blackish, with curved golden, whitish, and black scales intermixed, forming a dull golden patch on anterior two-thirds, the posterior part dark; black scales predominating in a lateral band running to root of wing; pleuræ dark gray, with gray and whitish scales. Abdomen black, the sides with narrow segmentary oblique white lines alternating with dorsal basal patches; venter black, with a few white scales at apices of the segments. Legs black, speckled with yellow on femora, forming subapical rings; tibiæ at tips and tarsal articulations yellow in addition; on the hind legs the third and fifth joints are entirely yellowish white. Wing-scales broadly ovate with truncate tips, black, sprinkled with yellow and with small white spots at bases of fork cells, bases of veins 2 to 4, two toward base of costa, four on first vein and elsewhere.

Male—Coloration of the female. Palpi not as long as the proboscis, with black and white scales intermixed. Hypopygium (Plate CIV, Fig. 365): Side-piece conical, with small basal excavation; three stout rods at tip of lobe and many fine setæ. Clasper long, rather slender, ridged outwardly with large, blunt terminal spine. Tenth sternites wide, one margin chitinized, the tip a single stout point. Mesosome a pair of short stout hooks.

Larva (Plate CIV, Fig. 364)—Head rounded; antennæ moderate, uniform, smooth, a large tuft at basal third; head-hairs all multiple, rather

large, subequal. Abdomen with dorsal plate on sixth segment, a large one on seventh, extending well down the sides, another on the eighth, excavated before the air-tube and extending well down the sides; lateral comb a double row of long spines. Air-tube over three times as long as wide, a large tuft before the middle. Anal segment about as long as wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and brush on each side; a single lateral hair. Anal gills long.

Costa Rica, Panama, British Guiana, Trinidad, Brazil.

The larvæ live in the water in tree-holes. The adults rest on the trunks, the species being very seldom seen unless looked for.

ORTHOPODOMYIA SIGNIFERA (Coquillett)

CULEX SIGNIFER Coquillett, Can. Ent., xxviii, 43, 1896.
MANSONIA WAVERLEYI Grabham, Can. Ent., xxxix, 25, 1907.
Orthopodamyia signifer Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 887, 1917.
Orthopodomyia waverleyi Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 891, 1917.
Orthopodmyia signifer Dyar, Proc. U. S. Nat. Mus., lxii, 96, 1922.
Orthopodomyia waverleyi Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 488, 1925.

Female—Proboscis rather long, black. Palpi one-fifth the length of proboscis, black, with a few white scales apically on the joints. Occiput blackish, with narrow, curved, white scales, a border of these scales behind the eyes throughout. Mesonotum dark velvety brown, with two bare lines, narrow hair-like bronzy scales between; two narrow white lines next bare spaces running back two-thirds, two lateral lines around margin of disk, two short lines between ends of dorsal lines and marginal ones, just touching two oblique lines that run onto the scutellum; pleuræ dark brown, with grayish white scales. Abdomen black, the basal segment with white scales, faint pale, lateral, whitish spots; ventral segments somewhat pale basally. Legs black, finely sprinkled with white minute scales, femora pale at base, white within; tips of femora and tibiæ and all the tarsal joints involving both ends white, very small on all but the hind legs, and there the articulations 1-2 and 2-3 have larger rings than elsewhere. Wing-scales ovate, mixed with narrow ones, black, rather sparsely sprinkled with white, forming slight spots at bases of second to fourth veins, a long line at base of sixth and a short one at base of subcostal.

Male—Coloration of the female. Palpi as long as the proboscis, black, sprinkled with white, with small white tips to the last two joints. Hypopygium (Plate CIV, Fig. 364; Plate CV, Fig. 366): Side-piece conical; basal lobe small, with three stout setæ at tip and one or more following it on the side-piece. Clasper rather long, swollen outwardly, with slightly subterminal large, broadened appendiculate spine. Tenth sternites moderate, concave, with three sharp subequal teeth at tip. Mesosome thin, cone-shaped, with two or three short teeth within, a long, sharp point on either side from a rounded base, and below these curved rudimentary parameres.

Larva (Plate CIV, Fig. 365; Plate CV, Fig. 366)—Head rounded; antennæ moderate, with a tuft at basal third, narrowed beyond; head-hairs multiple, the anteantennal tuft shorter. Abdomen with small dorsal chitinous plate on sixth segment, a large one on seventh and a transverse plate on the eighth, excavated for the air-tube; lateral comb a double row of long bars. Air-tube about three and a half times as long as wide,

slightly tapered, a large tuft before the middle. Anal segment about as long as wide, ringed by the plate, ventral brush posterior; dorsal tuft a long hair and brush on each side; a single lateral hair. Anal gills as long as the segment, tapered.

Eastern United States, Massachusetts to Texas, Jamaica.

The larvæ live in the water in tree-holes. The adults rest on the bark of trees. The species was occasionally to be found in the Mall in Washington, D. C., but too much "tree surgery" destroyed the breeding-places and the interesting little insect is gone.

ORTHOPODOMYIA ALBICOSTA (Lutz)

BANCROFTIA ALBICOSTA Lutz, in Bourroul, Mosq. do Braz., 40, 1904.
Bancroftia albicosta Theobald, Mon. Culic., iv, 521, 1907.
Bancroftia albicosta Peryassú, Os Culic. do Braz., 247, 1908.
Bancroftia albicosta Theobald, Mon. Culic., v, 469, 1910.
Bancroftia albicosta Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 210, 1911.

Female—Proboscis rather long, black, with a small whitish mark at outer third. Palpi half as long as the proboscis, black, with white scales at the joints. Occiput dark brown, with narrow white scales, showing as a conspicuous border behind the eyes. Mesonotum velvety brown; a subdorsal narrow white line, not quite reaching anterior margin, joining behind an oblique line to the scutellum, a narrow line along outer margin; pleuræ brown, with three lines of white scales. Abdomen black, the segments with lateral small white spots; venter largely black. Legs brown-black, the femora largely pale below toward base; femora and tibiæ white-lined on the side and with whitish apices; tarsi with white rings involving both ends of the joints, inconspicuous except on the hind legs, where the band at articulations 1-2 is large. Wing-scales, some ovate but predominantly mixed with narrow ones, black, a long line of white ones subcostally from base nearly to the middle of the wing.

Male—Coloration of the female. Palpi three-fourths as long as the proboscis. Hypopygium (Plate CV, Fig. 367): Side-piece moderate conical; a large basal lobe bearing five long, stiff spines. Clasper long, swollen outwardly, and armed with two stout pointed spines. Tenth sternites large, doubly pointed, one tooth small, both laterally directed. Mesosome large, bulbous, deeply excavate below, serrate on the margin. Ninth tergites undeveloped.

Larva—Head rounded, about as wide as long, slightly bulging on the sides; antennæ short, stout, tapering outwardly, a large tuft before the middle; head-hairs, upper, lower, middle, and anteantennal all fine multiple tufts. Sixth and seventh abdominal segments with large dorsal plates, reaching the middle of the sides; eighth segment with the plate narrow, encircling the segment, a long row of twenty-three large spines posteriorly to it. Air-tube about two and a half times as long as wide, tapered outwardly; a pair of very large hair-tufts beyond the middle; no pecten. Anal segment wider than long, ringed by the plate; dorsal tuft a long hair and brush with consolidated base on each side; ventral brush posterior, moderate, the tufts with consolidated bases. Anal gills longer than the segment, blunt.

Brazil, Venezuela.

The larvæ occur in the water in bamboo-joints. I am indebted to Dr. M. Núñez Tovar for the larvæ.

Tribe MEGARHININI

Megarhinini Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 478, 1924.

Very large, brilliantly colored mosquitoes with curved proboscis, incapable of biting. The adults feed on the honey of flowers. The males frequent certain positions on prominent vegetation and gather there, forming a stationary swarm. The adults are day-flying. The larvæ live in the water in tree-holes or plant tissues, predacious upon other mosquitoes living there. The destruction of other mosquito larvæ by the *Megarhinus* is not as important as might otherwise be the case, because the tree-hole inhabiting forms on which they feed, are never in very large numbers anyway.

Genus MEGARHINUS Robineau-Desvoidy

MEGARHINUS Robineau-Desvoidy, Mém. Soc. d'Hist. Nat., iii, 403, 1827.
TOXORHYNCHITES Howard, Mosq., 155, 1901.
ANKYLORHYNCHUS Lutz, in Bourroul, Mosq. do Brasil, 53, 1904.
LYNCHIELLA Lahille, Act. y Trab. 2 Con. Med. Lat.-Am., ii, 13, 1904.
WORCESTERIA Banks, Phil. Journ. Sci., i, 779, 1906.
TEROMYIA Leicester, Culic. Malaya, 49, 1908.
Megarhinus Dyar, Proc. U. S. Nat. Mus., lxii, 1922.
Megarhinus Dyar and Shannon, Journ, Wash. Acad. Sci., xiv, 478, 1924.
Megarhinus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 454, 1925.

The only genus in the tribe. In the following table both sexes are necessary to specific determination:

TABLE OF SPECIES

ADULT

1. Palpi of the female with the last joint sharply pointed *(Ankylorhynchus)* . . 2
   Palpi of the female blunt, truncated *(Megarhinus)* 3
2. Tarsi of female dark . . . . . *trichopygus* Wiedemann
   Mid tarsi white-marked below . . . . . *purpureus* Theobald
3. Abdomen with red caudal tufts 4
   Abdomen without red tufts, though sometimes of another color 6
4. Second hind tarsal joint white-ringed in the female; male with the abdominal red tufts well developed . . . . . *hæmorrhoides* Fabricius
   Second hind tarsal joint dark in the female; male with the abdominal red tufts less developed 5
5. From the northern edge of the tropics . . . . . *superbus* Dyar and Knab
   From the southern edge of the tropics . . . . . *lynchi* Dyar and Knab
6. Abdomen with blackish caudal tufts 7
   Without this character 8
7. Female with the tarsi entirely dark . . . . . *violaceous* Wiedemann
   Female with the second mid tarsal white-ringed . . . . . *solstitialis* Lutz
8. Legs yellow . . . . . *grandiosus* Williston
   Legs generally dark, not yellow 9
9. Female with the tarsi entirely dark . . . . . *bambusicola* Lutz and Neiva
   Female with some of the tarsal joints white-marked 10
10. Female with the fore tarsi entirely dark 11
    Female with the fore tarsi white-marked 13
11. Male with the tarsi entirely dark . . . . . *guadeloupensis* Dyar and Knab
    Male with the fourth joint of hind tarsi white-marked 12

12. Female with white on one side of second and third joints of mid tarsi, *horei* Gordon and Evans
    Female with mid tarsi dark . . . . . *portoricensis* von Röder
13. Female with the second to fifth hind tarsal joints white-marked 14
    Female with only fourth and fifth hind tarsal joints white-marked 15
14. Female, mid tarsi with some white on second and third joints, *toxorhynchus* Macquart
    Female, second to fifth mid tarsal joints white-marked . . . . *fluminensis* Peryassú
15. Fourth joint of male hind tarsi white, the fifth dark 16
    Fourth and fifth joints of male hind tarsi white-marked 19
16. Male with white on mid tarsi encircling the joints . . . *ambiguus* Dyar and Knab
    White on mid tarsi on one side only 17
17. White on fore tarsi of female not encircling second and third joints, *moengoensis* Bonne-Wepster and Bonne
    This white encircling the joints 18
18. Light marks of mesonotum more green than blue, *septentrionalis* Dyar and Knab
    These markings more blue than green . . . . . *moctezuma* Dyar and Knab
19. Mid tarsi of female with second, third, and fourth joints white-marked . . . 20
    Fourth joint of mid tarsi of female not white-marked 21
20. Fore and mid tarsi of the female with the white encircling the joints, *rutilus* Coquillett
    This white only on one side of the joints . . . . . *theobaldi* Dyar and Knab
21. Male with white all around fourth and fifth hind tarsals, *trinidadensis* Dyar and Knab
    This white on only one side of the joints . . . . . *hypoptes* Knab

The male hypopygia and larvæ are very uniform throughout the genus, and do not afford tangible specific characters in all cases.

Subgenus ANKYLORHYNCHUS Lutz

MEGARHINUS (ANKYLORHYNCHUS) PURPUREUS Theobald

MEGARHINUS PURPUREUS Theobald, Mon. Culic., i, 231, 1901.
ANKYLORHYNCHUS VIOLACEUS Theobald (not Wiedemann), Mon. Culic., iii, 117, 1903.
Megarhinus purpureus Theobald, Mon. Culic., v, 95, 1910.
Megarhinus violaceus Surcouf and Gonzales Rincones (not Wiedemann), Ess. Dipt. Vul. Venez., 89, 1911.
Megarhinus purpureus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 939, 1917.
Ankylorhynchus violaceus Peryassú (not Wiedemann), A Folha Medica, iv, 70, 1923.
Megarhinus purpureus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 480, 1925.

Female—Proboscis curved, narrower outwardly, black with blue reflection. Occiput and prothoracic lobes green, reflecting blue according to the light. Palpi with the last joint long and pointed, purple and blue. Mesonotum with green, blue and brown scales; pleuræ and coxæ with silvery white scales. Abdomen purple and blue above, with small basal segmental lateral yellowish silvery spots; venter brassy yellow, with purple median shade longitudinally, some black lateral apical tufts. Legs black, blue, and purple, the second mid tarsal joint yellowish white beneath. Wing-scales narrow, purple-black.

Male—Coloration as in the female, the tarsi entirely dark. Hypopygium (Plate CV, Fig. 368): Side-piece conical, moderate; a half dozen hairs on the inner side are coarse, three or four of them long; basal lobe conical, short, with fine hairs, some four of them at the tip stout, one especially long and stout. Clasper very long and slender, considerably longer than the side-piece, with a long sharp terminal spine, about a

quarter as long as the clasper itself. Tenth sternites narrow, heavily chitinized especially at tip, with a single strong terminal point. Ninth tergites forming a stout angular bridge with a low lobe on each side which bears about a dozen short, stiff setæ irregularly scattered over the lobe. Mesosome broadly conical at the base, the tips drawn out, very narrow, minutely serrate.

Larva (Plate CV, Fig. 368)—Head rounded quadrate, pale, with dorsal blackish marking; a broad central band, expanding on the tip of the head in T-shape and dividing below Y-shaped. Antennæ slender, small, pale on outer half, nearly black basally. Lateral plate of the eighth segment large but weak, ovate; posterior hairs single, both spinulated, but the upper one slender. Air-tube over three times as long as wide, nearly uniform; a paired multiple tuft near the base. Anal segment wider than long, the plate reaching well down the sides, with tufts of coarse spinules on the posterior edge. Dorsal tuft a brush of rather few and long hairs on each side; lateral hair single, stout, spinulated; ventral brush posterior, of about twelve stemmed tufts. Anal gills very short, bud-shaped.

Brazil. Sant' Anna, Brazil, February 9, 1925 (F. M. Root); Rio de Janeiro, Brazil, Botanical Garden, May 24 and June 7, 1925 (F. M. Root).

The larvæ occur in the water in the leaf-bases of Bromeliaceæ, feeding upon the other mosquito larvæ occurring there.

MEGARHINUS (ANKYLORHYNCHUS) TRICHOPYGUS (Wiedemann)

CULEX TRICHOPYGUS Wiedemann, Auss Zweifl. Ins., i, 4, 1828.
Megarhinus trichopygus Theobald, Mon. Culic., i, 243, 1901.
Megarhinus trichopygus Theobald, Mon. Culic., iii, 114, 1903.
ANKYLORHYNCHUS NEGLECTUS Lutz, in Bourroul, Mosq. do Bras., 14, 65, 1904.
Ankylorhynchus neglectus Theobald, Mon. Culic., iv, 127, 1907.
Ankylorhynchus trichopygus Theobald, Mon. Culic., iv, 127, 1907.
Ankylorhynchus neglectus Peryassú, Os Culic. do Braz., 147, 1908.
Ankylorhynchus neglectus Theobald, Mon. Culic., v, 95, 1910.
Ankylorhynchus trichopygus Theobald, Mon. Culic., v, 95, 1910.
Ankylorhynchus trichopygus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 88, 1911.
Ankylorhynchus neglectus Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 86, 1911.
Ankylorhynchus trichopygus Peryassú, A Folha Medica, iv, 70, 1923.
Ankylorhynchus neglectus Peryassú, A Folha Medica, iv, 70, 1923.
Megarhinus trichopygus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 479, 1925.
Megarhinus neglectus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 480, 1925.

Female—Proboscis curved, slender outwardly, black, with purple and golden scales. Palpi with the last joint long and pointed, bright purple-scaled. Occiput blue, with some purple scales. Prothoracic lobes bright blue. Mesonotum dark, with bright blue, brown, and bronzy scales; pleuræ and coxæ with silvery scales. Abdomen bright purple and blue, with small lateral segmental yellowish silvery basal spots; venter brassy yellow, with indistinct median purplish shade. Legs black, with purple and metallic scales.

Male—Presumably colored as in the female. This sex is not before me.

Larva (Plate CVI, Fig. 369)—Head quadrate; head-hairs single. Antennæ slender, slight. Mouth-brushes of about six curved plates. Coloration pale, uniform. Lateral plate of the eighth segment large, upper posterior

hair thick, spinulated, lower similar, doubled. Air-tube short, two and a half times as long as wide; a large four-haired tuft at basal fifth. Anal segment wider than long, the plate reaching well down the sides, its posterior margin densely spined; a small, ragged, ventral plate before the brush. Dorsal tuft a multiple brush on each side; lateral hair thickened, spinulose; ventral brush of about eight coarse, stemmed tufts; anal gills very short.

Brazil. Porto das Caixas, Brazil, May 29, 1925 (F. M. Root).

Neglectus was described by Lutz from one female bred from water in the leaf-bases of Bromeliaceæ. Dr. Root bred another single female. This differs from *trichopygus* only in lacking the black caudal tufts. As these tufts are easily lost, especially in bred specimens which are damaged in emergence, it is obvious that *neglectus* is the same species as *trichopygus*, being specimens that have lost the tufts.

Subgenus MEGARHINUS Robineau-Desvoidy

MEGARHINUS (MEGARHINUS) SUPERBUS Dyar and Knab

MEGARHINUS SUPERBUS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., xlviii, 255, 1906.

Megarhinus superbus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 932, 1917.

Megarhinus superbus Dyar, Ins. Ins. Mens., xiii, 31, 1925.

Megarhinus (Megarhinus) superbus Dyar, Ins. Ins. Mens., xiii, 180, 1925.

Megarhinus superbus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 476, 1925.

Female—Proboscis slender outwardly, recurved, black, with greenish luster. Palpi three-fourths as long as proboscis, last joint blunt, black, with blue and coppery scales. Occiput and prothoracic lobes with bright blue scales. Mesonotum broadly grass-green, bright blue around the margins; pleuræ with silvery scales. Abdomen bright purple, blue toward the base, the segments with silvery lateral spots; last three segments with lateral red tufts. Legs black with strong blue reflection, femora yellowish below; mid-tarsi with the second and all but the tip of the third joint white on the outer side. Wing-scales brown, purple along the costa.

Male—Coloration of the female. Palpi with the third joint long and pointed. Legs without any white. Hypopygium (Plate CVI, Fig. 370). Side-piece conically tapered; basal lobe large, with two stout hairs and a number of small ones. Clasper long and slender, uniform, a long, sharp subterminal spine. Tenth sternites large, curved and infuscated at tip, with laterally directed point. Ninth tergites a long bridge, bearing two small remote processes, each with about six long setæ evenly distributed. Mesosome two long hornlike appendages with minute teeth within.

Larva—Head subquadrate, longer than wide, front margin emarginate at middle; antennæ slender, rather long, smooth, three hairs separately at outer third. Eighth segment with a large plate on the side. Air-tube rather slender, slightly tapered, over four times as long as wide; a single tuft at basal fifth. Anal segment as long as wide, ringed by the plate; ventral brush of coarse ciliate hairs; dorsal tuft of five long hairs on each side. Anal gills very short.

Mexico, Costa Rica, Honduras, Nicaragua, Panama, Ecuador, Trinidad, Cuba.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ, feeding upon other mosquito larvæ occurring in such situations. The adults do not bite, but feed on the nectar of flowers.

MEGARHINUS (MEGARHINUS) HÆMORRHOIDALIS (Fabricius)

CULEX HÆMORRHOIDALIS Fabricius, Ent. Syst., iv, 401, 1794.
Culex hæmorrhoidalis Fabricius, Syst. Antliat., 251, 1805.
Culex hæmorrhoidalis Wiedemann, Dipt. Exot., i, 6, 1821.
Megarhinus hæmorrhoidalis Robineau-Desvoidy, Mem. Soc. d'Hist. Nat. Paris, iii, 427, 1827.
MEGARHINUS SEPARATUS Lynch Arribálzaga, Rev. Mus. de La Plata, ii, 133, 1891.
Megarhinus hæmorrhoidalis Theobald, Mon. Culic., i, 222, 1901.
Megarhinus separatus Theobald, Mon. Culic., i, 219, 1901.
Megarhinus hæmorrhoidalis Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., xlviii, 243, 1906.
Megarhinus separatus and *hæmorrhoidalis* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 81 and 83, 1911.
Megarhinus hæmorrhoidalis Lutz and Neiva, Mem. Inst. O. Cruz, vi, 50, 1914.
Megarhinus hæmorrhoidalis Peryassú, A Folha Medica, iv, 69, 1923.
Megarhinus hæmorrhoidalis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 470, 1925.

Female—Proboscis long, curved, attenuated outwardly, black with blue and violet reflections. Palpi more than half as long as proboscis, plainly jointed, blunt, black, with blue and violet scales. Occiput black with strong green and blue reflections. Prothoracic lobes bright blue. Mesonotum with green and blackish scales intermixed, blue around the margin; pleuræ and coxæ with silvery white scales. Abdomen purple, green anteriorly, with white on sides of first segment, white lateral segmental patches, separated by light blue; venter white, with a row of median black spots; last three segments with lateral red tufts. Legs black, blue, and violet; mid tarsi with second joint white all around, third white dorsally; hind tarsi with the second joint white. Wing-scales largely absent, except costally, small, broad, purplish.

Male—Coloration of the female. Palpi with the third joint long and pointed. Abdominal red tufts on the last four segments. Legs without white markings. Hypopygium (Plate CVI, Fig. 371): Side-piece conical, tapering; basal lobe with three stout spines at tip and numerous minute setæ. Clasper long, slender, uniform, with long, sharp, subapical spine. Tenth sternites large, curved and infuscated at tip, with laterally directed point. Ninth tergites a pair of ten setæ chiefly on the outer aspect. Mesosome a pair of long remote conical processes bearing some plates, arcuate basally, attenuated apically, with short teeth within.

Larva—Unknown.

The Guianas and Brazil.

This species probably occurs in the water in the leaf-bases of Bromeliaceæ as with *superbus*, feeding upon the other mosquito larvæ found there; but I have no actual knowledge of its habits.

MEGARHINUS (MEGARHINUS) LYNCHI Dyar and Knab

Megarhinus hæmorrhoidalis Lynch Arribalzaga (not Fabricius), Rev. Mus. de La Plata, i, 376, 1891.
Megarhinus hæmorrhoidalis Theobald (not Fabricius), Mon. Culic., i, 222, 1901.
Megarhina hæmorrhoidalis Giles (♂ only), Handb. Gn. or Mosq., 2 ed, 270, 1902.
Megarhinus hæmorrhoidalis Blanchard (not Fabricius), Les Moust., 222, 1905.
MEGARHINUS LYNCHI Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., lxviii, 244, 1906.
Megarhinus lynchi Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 477, 1925.

No specimens of this form are before me, and so a detailed description can not be given. It is characterized by the long third segment of the palpi of the male and the absence of white on the hind-tarsi of the female. It bears the same relation to *hæmorrhoidalis* on its southern extension that *superbus* does to that species on its northern extension, being a derivative and allied species. Only these three *Megarhinus* have the red anal tufts.

MEGARHINUS (MEGARHINUS) VIOLACEUS (Wiedemann)

CULEX VIOLACEUS Wiedemann, Auss. Zwiefl. Ins. i, 3, 1828.
MEGARHINUS MARIÆ Bourroul, Mosq. do Bras., 3, 1904.
Megarhinus mariæ Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 83, 1911.
MEGARHINUS IRIS Knab, Ins. Ins. Mens., i, 35, 1913.
Megarhinus violaceus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 936, 1917.
Megarhinus violaceus Peryassú, A Folha Medica, iv, 69, 1923.
Megarhinus violaceus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 477, 1925.

Female—Proboscis slender, black with slight greenish reflection. Palpi long, distinctly jointed, blunt, violet, with coppery reflections. Occiput black with green and blue reflections. Prothoracic lobes green-blue. Mesonotum with green and brown scales, bright green around the margins; pleuræ silver-scaled. Abdomen purple and blue, green-blue at base, with basal segmental lateral silvery white spots; venter white, with a median black line, segmentarily widened. Legs black, with blue and purple scales, femora yellowish silvery below. Wing-scales, where present, small and broad, black.

Male—Unknown.

Larva (Plate CVI, Fig. 372)—Head subquadrate, about as long as wide; front margin deeply emarginate at middle. Antennæ very slender and rather long. Air-tube rather slender, slightly tapered, over four times as long as wide; a single pair of tufts at basal sixth. Anal segment about as long as wide, ringed by the plate, the latter with long spines on posterior margin; dorsal tuft of five long hairs on each side; ventral brush well developed. Anal gills very short.

Brazil and Trinidad.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ, feeding upon the other mosquito larvæ found there.

MEGARHINUS (MEGARHINUS) SOLSTITIALIS Lutz

MEGARHINUS SOLSTITIALIS Lutz, in Bourroul, Mosq. do Bras., 10, 1904.
Megarhinus solstitialis Theobald, Mon. Culic., iv, 133, 1907.
MEGARHINUS CHRYSOCEPHALUS Theobald, Mon. Culic., iv, 136, 1907.
Megarhinus chrysocephalus Theobald, Mon. Culic., v, 94, 1910.
Megarhinus solstitialis and *chrysocephalus* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 84 and 85, 1911.
Megarhinus solstitialis and *chrysocephalus* Peryassú, A Folha Medica, iv, 70, 1923.
Megarhinus solstitialis and *chrysocephalus* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 479, 1925.

Female—Proboscis metallic violet. Palpi metallic violet, not as long as proboscis, blunt. Occiput with deep brown scales, azure-blue in front. Mesonotum with metallic bronzy green scales, and some blue ones in the middle in front and at the sides. Prothoracic lobes blue. Abdomen violet-

purple, green toward base, with lateral segmental white spots; last two segments with lateral black tufts with a white tuft preceding. Legs metallic violet and coppery, femora yellowish silvery below; mid tarsi with the second joint creamy white. Wing-scales short and broad, purplish.

Male—Coloration of the female. Apical segment of the palpi acuminate, not quite twice as long as the penultimate. Caudal tuft deep brown, with violet tint, the anterior part on the sixth segment paler than the rest. Tarsi without white marking (descriptions not clear on this point). Hypopygium unknown.

Larva—Unknown.

Brazil, Argentina.

The larvæ live in the water in the leaf-bases of Bromeliaceæ, particularly *Æchmea tinctoria,* feeding upon the other mosquito larvæ found there. Theobald gives a photograph of a portion of the head of the larva. Mr. R. C. Shannon took several specimens of this species at Iguazu, Misiones, Argentina, and has deposited some in the U. S. National Museum, through the courtesy of the Instituto Bacteriologico of Buenos Aires.

MEGARHINUS (MEGARHINUS) GUADELOUPENSIS Dyar and Knab

MEGARHINUS GUADELOUPENSIS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., xlviii, 248, 1906.

Megarhinus guadeloupensis Howard, Dyar, and Knab, Mosq. of No. and Cent. Am. and W. I., iv, 954, 1917.

Megarhinus guadeloupensis subsp. GUIANENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 180, 1920.

Megarhinus guadelopensis and *guianensis* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 462, 1925.

Female—Proboscis curved, black with violet reflection. Palpi long, distinctly jointed, blunt, dark purple. Occiput blackish or bright green according to the light. Prothoracic lobes bright blue. Mesonotum with blackish scales, broadly green around the margin and in a median stripe; pleuræ silver-scaled. Abdomen green basally, blue and violet outwardly; venter yellowish silvery, as also ill-defined lateral segmental spots. Legs black with strong violet reflection, the femora pale golden below; mid tarsi with the second joint white on one side; hind tarsi with the fourth joint white all around. Wing-scales, where present, short and broad, dark violet.

Male—Coloration of the female. Palpi with the last joint long and sharp. Legs without white markings. Hypopygium (Plate CVII, Fig. 373): Side-piece conical, narrowed outwardly; basal lobe large, with three stout spines at tip and many short setæ. Clasper long, slender, uniform, with a long, sharp spine somewhat subapically inserted. Tenth sternites large, narrow, infuscated at tip, with a single laterally directed point. Ninth tergites with narrow bridge, slightly thickened, with about six setæ well distributed. Mesosome bulbous at base, the outer half attenuated, the plates reversely toothed on their inner margins.

Larva (Plate CVII, Fig. 373)—Head subquadrate, rather longer than wide, front margin deeply emarginate at middle. Antennæ slender, rather long, cylindrical. Eighth segment with a large lateral chitinous plate. Air-tube stout, about three and a half times as long as broad, with a multiple tuft close to the base posteriorly. Anal segment nearly as long as broad, ringed by the plate, which has a spinulose posterior margin; dorsal tuft a

long brush on each side; a single spinulose lateral hair. Anal gills very short.

Lesser Antilles (Guadeloupe), Surinam, and Venezuela.

The larvæ occur in the water in the leaf-bases of Bromeliaceæ, feeding upon the other larvæ occurring there.

This species was founded upon a pair bred from Bromeliaceæ from Guadeloupe. Dr. M. Núñez Tovar sent me a female which agrees among a lot of variable *trinidadensis*, a species occurring in tree-holes. *Trinidadensis* which had lost the white on front tarsi (♀) would be indistinguishable from *guadeloupensis* by description. Nevertheless, two species may be indicated by the different larval habitat.

MEGARHINUS (MEGARHINUS) HOREI Gordon and Evans

MEGARHINUS HOREI Gordon and Evans, Ann. Trop. Med. and Par., xvi, 330, 1922.
Megarhinus horei Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 469, 1925.

Female—Coloration similar to that of the male. Mid legs with tarsals 2 and 3 white on one side; hind tarsi with fourth joint entirely white, and basal two-thirds of fifth joint on one side.

Male—Palpi slightly longer than proboscis, peacock blue and violet, with purplish reflections. Occiput mostly with olivaceous green scales. Prothoracic lobes bright blue. Mesonotum bronzy, with blue margins and central stripe; pleuræ with creamy white scales. Abdomen with first segment metallic pale blue, shading posteriorly to bronzy brown with violet reflections; sides with patches of creamy scales; venter creamy with silver reflection, a median dark stripe of bronzy scales with blue reflection. Legs dark, with blue and purple reflections; femora brassy beneath, knees dark; hind tarsi with the fourth joint white, except at base and apex. Hypopygium: Side-piece conical, tapered outwardly; basal lobe large, with three stout setæ at tip and many small ones. Clasper long, slender, uniform, with long sharp spine slightly subapically inserted. (Tenth sternites undescribed.) Ninth tergites on a moderate bridge, conical, each with about ten fine setæ, well distributed. (Mesosome not described.)

Larva—Head rounded quadrate, longer than wide, deeply emarginate in front; antennæ rather long, slender, with scattered hairs outwardly. Eighth segment with lateral plate. Air-tube about two and a half times as long as wide, a paired tuft basally posteriorly. Anal segment about as long as wide, ringed by the plate, which is spinose posteriorly; dorsal tuft of two five-haired brushes on each side; a single lateral feathered hair; ventral brush posterior, feathered. Anal gills very short.

Brazil.

The larvæ were found deep between the inner leaves of a wild banana *(Bananeira braba)* in a small amount of fluid, where they fed upon the larvæ of certain sabethids whose habitat was the same. This species is not before me, the account being compiled from that of Gordon and Evans.

MEGARHINUS (MEGARHINUS) MOENGOENSIS Bonne-Wepster and Bonne

MEGARHINUS MOENGOENSIS Bonne-Wepster and Bonne, Ins. Ins. Mens., xi, 7, 1923.
Megarhinus moengoensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 466, 1925.

Female—Proboscis long, curved. Palpi long and stout, blunt, distinctly jointed, metallic blue and purple, the apices of the segments light violet.

Occiput with light green and blue iridescent scales; cheeks and head beneath silver-scaled. Prothoracic lobes silvery blue. Mesonotum with small brown scales on the disk, margins and a median stripe metallic green and blue; pleuræ silver-scaled. Abdomen olive green basally, deep blue terminally; venter golden-scaled, with a narrow blue median stripe. Legs steel-blue, femora brassy beneath. Front tarsi with white scales on one side of second and base of third joint; mid with second and basal two-thirds of third white all around, apical third of third and basal half of fourth on one side only; hind tarsi with white on fourth and basal half of fifth all around. Wing-scales bluish costally.

Male—Coloration of the female. Mid tarsi with faint bluish white scales on one side of second and basal third of third joints; hind tarsi with fourth joint white all around. Hypopygium: Side-piece conical, narrowed outwardly; basal lobe large, with three stout setæ at tip and many small ones. Clasper long and slender, uniform, a long, sharp spine not quite apically inserted. Tenth sternites large, narrow, with laterally directed point. Ninth tergites on a moderate bridge, conical, each with several setæ. Mesosome conical at base, the outer half slender, the limbs reversely toothed inwardly.

Larva—Head rounded, about as broad as long, front margin shallowly excavate; antennæ small, slender, with a little tuft outwardly. Lateral plate of the eighth segment with two coarse spines posteriorly. Air-tube about twice as long as wide, with a small paired tuft posteriorly near base. Anal segment as long as wide, spined posteriorly; dorsal tuft of two few-haired brushes on each side; a single coarse, spined lateral hair. Anal gills very short.

Surinam.

The larvæ were found in the fluid in the flower-cups of *Heliconia* and *Ravenala*, feeding upon the larvæ of the sabethids frequenting these plants.

MEGARHINUS (MEGARHINUS) GRANDIOSUS Williston

MEGARHINA GRANDIOSA Williston, Biol. Cent.-Am., Dipt., i, 224, 1900.
MEGARHINUS LONGIPES Theobald, Mon. Culic., i, 241, 1901.
Megarhinus longipes Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 81, 1911.
Megarhinus grandiosa and *longipes* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 939, 1917.
Megarhinus grandiosa and *longipes* Bonne-Wepster and Bonne, Ins. Ins. Mens., ix, 24 and 25, 1921.

Female—Head with flat golden brown scales behind, pale green ones in front. Palpi with metallic green scales. Proboscis coppery. Mesonotum with bronzy and green scales, the green laterally. Prothoracic lobes pale blue; pleuræ with pale golden scales. Abdomen bright metallic olive-green, first segment with pale blue scales, apex yellow; venter golden. Legs with femora, tibiæ, and first tarsal joint deep steely blue; fore and mid tarsi with second to fourth joints yellowish, last black; hind tarsi with second and third joints purplish black, the apex of the latter white, the fourth and fifth nearly white. Wing-scales, where present, short and broad, purplish.

Male—Unknown.

Larva—Unknown.

Mexico.

No specimens of this species have come under my observation. The legs are said to be distinctly yellowish, but not actually banded.

MEGARHINUS (MEGARHINUS) BAMBUSICOLA Lutz and Neiva

MEGARHINUS BAMBUSICOLA Lutz and Neiva, Mem. Inst. O. Cruz, v, 136, 1913.
MEGARHINUS ALDRICHANUS Bonne-Wepster and Bonne, Ins. Ins. Mens., vii, 179, 1920.
Megarhinus bambusicola Peryassú, A Folha Medica, iv, 70, 1923.
Megarhinus aldrichanus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 475, 1925.
MEGARHINUS TUCUMANUS Brèthes, Bol. del Inst. de Clin. Quirúrgia, Nos. 14-16, 1926.

Female—Coloration of the male.

Male—Proboscis bent, dark violet. Occiput coppery or metallic violet. Prothoracic lobes bright blue. Mesonotum dark brown, bright blue around the margin. Abdomen green at the base, dark violet beyond; venter golden, with median violet marking. Legs violet, the femora golden below. Wings violet costally. Hypopygium unknown.

Larva—Unknown.

Brazil.

The larvæ occurred in the water in bamboo-joints. This form is not before me. The description is based upon a male, the female being passed over cursorily. No mention is made of any white on the tarsi of the female, nor is there any statement that the white is absent. In case white were present on the second mid tarsal and the fourth hind tarsal, and overlooked or not mentioned in the description or the specimen was imperfect, then this name would easily fall to *guadeloupensis,* a form which occurs also on the mainland and may extend to Brazil.

A male specimen in the collection of the late Dr. Juana Petrocchi which was labeled *"Megarhinus bambusicola"* by Dr. A. Neiva, has all the tarsi dark; four lower anterior mesepimeral setæ; sternopleural setæ numerous and long. Specimens identified as *"Megarhinus tucumanus"* by Mr. R. C. Shannon, and taken by him in the same region whence the type of *tucumanus* came, and where it is thought only one species of *Megarhinus* occurs, vary in color. Some have the fourth hind-tarsal white on one side, others entirely dark. The same variation occurs in the male. Specimens were bred from bromelias and tree-holes. These have no lower anterior mesepimeral setæ; sternopleuræ with very few shorter setæ. Two species would thus be indicated, except that the authenticity of the *"bambusicola"* named by Dr. Neiva is uncertain, the history of the specimen being lost. (Notes furnished by Mr. R. C. Shannon).

MEGARHINUS (MEGARHINUS) PORTORICENSIS von Röder

MEGARRHINA PORTORICENSIS von Röder, Stett, Ent. Zeit., xlvi, 337, 1885.
MEGARHINUS HAITIENSIS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., xlviii, 248, 1906.
Megarhinus portoricensis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 84, 1911.
Megarhinus portoricensis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 958, 1917.
Megarhinus portoricensis Peryassú, A Folha Medica, iv, 69, 1923.
Megarhinus portoricensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 478, 1925.

Female—Proboscis curved, black with violaceous reflection. Palpi long, distinctly jointed, blunt, black, with blue and violet scales; ends of the joints pearly. Occiput blackish in the middle, with green reflection, pearly white about the margins of the eyes. Prothoracic lobes bright blue. Mesonotum blackish-scaled in the middle, bright blue and green around the

margins and in a central line; pleuræ with silver scales. Abdomen green basally, violet outwardly, the segments with lateral silver spots continuous with the yellowish silvery venter; a medioventral irregular blackish band. Legs black, with blue and violet reflections, femora white below and pale at tips; hind tarsi with the fourth joint white all around. Wing-scales, where present, short and broad, purplish.

Male—Coloration of the female. Palpi with the last joint long and acuminate. Tarsi colored as in the female. Hypopygium (Plate CVII, Fig. 374): Side-piece conical, narrowed outwarlly; basal lobe large, with three stout spines at tip and many short setæ. Clasper long, slender, uniform, with a long, sharp spine somewhat subapically inserted. Tenth sternites large, narrow, infuscated at tip, with a single laterally directed point. Ninth tergites with narrow bridge, conical, with about eight fine setæ. Mesosome bulbous at base, the outer half attenuated, the plates reversely toothed on their inner margins.

Larva (Plate CVII, Fig. 374)—Head rounded quadrate, longer than wide, deeply emarginate in front; antennæ rather long, slender, with single hairs beyond the middle. Lateral plate of the eighth segment large, irregularly quadrate, with two stiff spinulose setæ on its posterior margin. Air-tube about three times as long as wide, slightly tapered, a pair of large tufts near base posteriorly. Anal segment about as long as wide, ringed by the plate, which is spinose on posterior margin; ventral brush posterior, coarse and feathered; dorsal tuft of two large brushes on each side; a single lateral spinulose hair. Anal gills very short.

Greater Antilles.

The larvæ occur in the water in tree-holes, feeding upon the other mosquito larvæ found there.

MEGARHINUS (MEGARHINUS) TOXORHYNCHUS (Macquart)

Culex toxorhynchus Macquart, Dipt. Exot., i, 1, 39, 1838.

Female—"Trompe concave (vue de cote). Pieds anterieurs manquant, les autres à hanches et base des cuisses vertes; intermédiaires; un peu de blanc à la base des 1er et 2e articles des tarse; postérieures: 1 et 2 joints des tarses à large anneau blanc; 3e entièrement blanc. Les autres manquant. Ailes irisées, a écailles brunes.

"De Brésil ou du Chili (rapporté par M. Gaudechaud)."

This appears to represent a species distinct from any described. I have not seen any specimens to correspond.

MEGARHINUS (MEGARHINUS) FLUMINENSIS Peryassú

Megarhinus fluminensis Peryassú, Os. Culic. do Braz., 128, 1908.
Megarhinus fluminensis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 85, 1911.
Megarhinus fluminensis Peryassú, A Folha Medica, iv, 70, 1923.

Female—Proboscis long, curved, dark bluish. Palpi long, distinctly jointed, dark blue, golden yellow in places. Occiput metallic green and blue. Prothoracic lobes sky-blue. Mesonotum dark, with green, blue, and orange scales in the middle and marginally. Abdomen metallic green in front, dark blue behind, golden yellow on the sides and below, with a medioventral blue band. Legs brilliant blue without; femora golden below; all tarsi with second to fourth joints white-marked (?). Wing tinged with blue costally.

Male—Predominantly blue, appearing like a different species from the female. Mid tarsi with the second joint white, hind with second to fourth joints white-marked. Hypopygium unknown.

Larva—Unknown.

Brazil.

I have not seen this species.

MEGARHINUS (MEGARHINUS) AMBIGUUS Dyar and Knab

CULEX FEROX Wiedemann (not Wiedemann, not Humboldt), Auss. Zweifl. Ins., i, 2 (zusatz), 1828.

MEGARHINUS AMBIGUUS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., xlviii, 258, 1906.

Female—Unknown.

Male—Third and fourth joints of mid tarsi white; fourth joint of hind tarsi white. Hypopygium unknown.

Larva—Unknown.

Brazil.

The name *ambiguus* was proposed to cover Wiedemann's description of a male in the collection of von Winthem of Hamburg, which differed from his original characterization of *ferox,* although mentioned under that name. No specimens have been seen by me. Hind tarsi, "nur das vierte Glied ist weiss"; mid tarsi "ist das 3 und 4 Glied weiss"; fore legs missing. All the other known males of *Megarhinus* which have the fourth hind tarsal white and white on the mid tarsi have the white on the second and third joints, not on the third and fourth. Therefore either this is a very distinct species or Wiedemann made a mistake in counting the joints. If a mistake was made, *ambiguus* might easily prove an earlier name for *moengoensis.*

MEGARHINUS (MEGARHINUS) SEPTENTRIONALIS Dyar and Knab

MEGARHINUS SEPTENTRIONALIS Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 12, 1907.

MEGARHINUS HERICKII Theobald, Mon. Culic., iv, 131, 1907.

Megarhinus septentrionalis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 946, 1917.

Megarhinus septentrionalis Dyar, Proc. U. S. Nat. Mus., lxii, 100, 1922.

Megarhinus ferox Peryassú (not Wiedemann), A Folha Medica, iv, 69, 1923.

Female—Proboscis curved, black with violet reflections. Palpi long, distinctly jointed, blunt, black, with violet and blue scales, the tips of the joints pearly white. Occiput green, olive, and bronze. Prothoracic lobes blue, green around the edge. Mesonotum dark brown on the disk, apple-green around the margins and anterior median stripe, peacock-blue behind; pleuræ with yellowish silvery scales. Abdomen metallic green, the last two or three segments dark blue, with large golden yellow lateral spots, roundedly incising the segments; venter silvery golden, with median dark violaceous band. Legs dark purple, femora white below and at tips; fore and mid tarsi with tip of first, second to fourth, and base of fifth white all around; hind tarsi with tip of third, fourth, and all but tip of fifth white all around. Wing-scales, where present, short and broad, violaceous.

Male—Coloration of the female. Palpi with the last joint long and acuminate, the penultimate with some silvery scales below. Fore tarsi black, with only a few pale blue scales outwardly; mid tarsi with second joint outwardly and third except at tip white-marked, faintly encircling; hind tarsi with fourth and basal half of fifth white all around. Hypopy-

gium (Plate CVII, Fig. 375): Side-piece conical, narrowed outwardly; basal lobe large, with three stout spines at tip and many short setæ. Clasper long, slender, uniform, with a long, sharp spine somewhat subapically inserted. Tenth sternites large, narrow, infuscated at tip, with a single laterally directed point. Ninth tergites rounded and rather large, from a rather broad bridge, each with about fifteen fine setæ. Mesosome bulbous at base, the outer half attenuated, the plates reversely toothed on their inner margins.

Larva (Plate CVII, Fig. 375)—Head subquadrate, longer than wide, the front margin deeply emarginate centrally; antennæ cylindrical, slender, with two separate hairs at outer third. Eighth segment with a large lateral plate with two stout spinulose hairs on its posterior margin. Air-tube conically tapered, about two and a half times as long as wide; a single pair of posterior tufts near the base. Anal segment about as long as wide, ringed by the plate; dorsal tuft of two long brushes on each side; a single spinulose lateral hair. Anal gills very short.

Eastern United States, West Virginia, Maryland, Virginia, North Carolina, Georgia, Tennessee, Missouri, Oklahoma.

The larvæ live in the water in tree-holes, feeding upon the other mosquito larvæ occurring there. Occasionally found in rock-holes or wooden receptacles.

MEGARHINUS (MEGARHINUS) MOCTEZUMA Dyar and Knab

MEGARHINUS MOCTEZUMA Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., xlviii, 251, 1906.

Megarhinus moctezuma Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 950, 1917.

Megarhinus (Megarhinus) moctezuma Dyar, Ins. Ins. Mens., xiii, 181, 1925.

Megarhinus moctezuma Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 478, 1925.

Female—Proboscis curved, black with violet reflection. Palpi large, distinctly jointed, blunt, black, with violet and blue scales, the tips of the joints pearly violaceous. Occiput green and coppery, white on the sides below. Prothoracic lobes green or blue, with dark reflections. Mesonotum dark brown, with coppery scales, the margins and central stripe green; pleuræ yellowish silvery-scaled. Abdomen dark green, the terminal segments dark blue and coppery; lateral incisions and venter golden yellow, with a median dark violaceous stripe. Legs black, with violet and blue reflections, femora yellowish below and with white tips; fore and mid tarsi with the second joint white all around, the basal two-thirds of third joint white on one side; hind tarsi with the fourth joint white all around, the fifth white on one side on basal half. Wing-scales, where present, short and broad, violaceous brown.

Male—Coloration of the female. Last joint of palpi long and acuminate. Fore tarsi dark, with a few light blue scales; mid tarsi with the second joint white, faint below, base of third white on one side; hind tarsi with the fourth joint white all around except at its tip. Hypopygium (Plate CVIII, Fig. 376): Side-piece conical, narrowed outwardly; basal lobe large, with three stout spines at tip and many short setæ. Clasper long, slender, uniform, with a long, sharp spine somewhat apically inserted. Tenth sternites large, narrow, infuscated at tip, with a single laterally directed point. Ninth tergites forming a stout quadrate bridge, the angles roundedly prominent and bearing some fifteen setæ on outer aspect. Mesosome bulbous at base,

the outer half attenuated, the plates reversely toothed on their inner margins.

Larva (Plate CVIII, Fig. 376)—Head subquadrate, longer than wide, front margin deeply emarginate at middle; antennæ slender, smooth, two separated hairs at outer fourth, and a little tuft. Eighth segment laterally with a large plate with two stout spinulose hairs on its posterior margin. Air-tube about three times as long as wide, a pair of posterior tufts near base. Anal segment about as long as wide, ringed by the plate, with a row of spines behind; dorsal tuft of two long brushes on each side, a single spinulose lateral hair. Anal gills very short.

Mexico, Central America, Panama.

The larvæ live in the water in tree-holes, feeding upon the other mosquito larvæ found there.

MEGARHINUS (MEGARHINUS) RUTILUS Coquillett

MEGARHINUS RUTILA Coquillett, Can. Ent., xxviii, 44, 1896.
Megarhinus rutila Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 940, 1917.
Megarhinus rutila Dyar, Proc. U. S. Nat. Mus., lxii, 100, 1922.

Female—Proboscis curved, black with violet and green reflection. Palpi large, distinctly jointed, blunt, black, green, and bronze, the joints pearlaceous at tips. Occiput dark green, white at the sides below and eye-margins. Prothoracic lobes bright blue. Mesonotum dark brown, whitish green around the margins and median line, peacock-green behind; pleuræ silver-scaled. Abdomen dark green, the terminal segments bluish, segments roundedly incised laterally and venter golden; a median dark purplish band. Legs black, green, and violet, the femora pale silvery below and at tips; fore tarsi with second, third, and basal half of fourth joints white all around; mid tarsi with tip of first, second to fourth joints white all around; hind tarsi with fourth and fifth, except tip of fifth, white all around. Wing-scales, where present, short and broad, violaceous.

Male—Coloration of the female. Palpi with the last joint long and acuminate. Fore and mid tarsi with second and basal half of third joints white; hind tarsi with fourth and all but tip of fifth white all around. Hypopygium (Plate CIX, Fig. 377): Side-piece conical, narrowed outwardly; basal lobe large, with three stout spines at tip and many short setæ. Clasper long, slender, uniform, with a long sharp spine somewhat apically inserted. Tenth sternites large, narrow, infuscated at tip, with a single laterally directed point. (Ninth tergites obscure in the mount.) Mesosome bulbous at base, the outer half attenuated, the plates reversely toothed on their inner faces.

Larva—Unknown.

Florida.

The larvæ presumably live in the water in tree-holes. Differs at once from *septentrionalis* by the male having white on the front tarsi.

MEGARHINUS (MEGARHINUS) THEOBALDI Dyar and Knab

Megarhinus ferox Theobald (not Wiedemann, not Humboldt), Mon. Culic., i, 237, 1901.
MEGARHINUS THEOBALDI Dyar and Knab, Smiths. Misc. Colls., Qaurt. Iss., xlviii, 246, 1906.
MEGARHINUS POSTICATUS Lutz and Neiva, Mem. Inst. O. Cruz, v, 139, 1913.
Megarhinus posticatus Peryassú, A Folha Medica, iv, 70, 1923.

Female—Coloration of the male. Fore tarsi with white on second and base of third joints; mid tarsi with second and basal half of third white; hind tarsi with or without tip of third, fourth, and fifth white.

Male—Proboscis curved, dark violet-scaled. Palpi with the last joint long and acuminate, shining dark violet. Occiput with bright bronzy scales in the middle, at the sides and below pearly white. Prothoracic lobes coppery blue in the middle, sky-blue on the sides. Mesonotum olivaceous with coppery reflection, sky-blue around the margins and in median line. Abdomen steel-blue basally, dark violet terminally; venter dull golden, with median dark violet stripe. Legs violet with steel-blue reflection, femora and also tibiæ of mid legs golden below; mid tarsi with the second joint white on one side; hind tarsi with fourth joint white, the fifth white on one side at base. Wing-scales, where present, short and broad, dull violet.

Larva—Unknown.

Brazil.

The larvæ were found in the water in bamboo-joints. Theobald described his "*ferox*" from a male and a female in the Hope Museum, Oxford, England, which specimens are the types of *theobaldi*. This species is not before me.

MEGARHINUS (MEGARHINUS) TRINIDADENSIS Dyar and Knab

CULEX FEROX Wiedemann (not Humboldt), Auss. Zweifl. Ins., i, l, 1828.
Megarhina ferox Walker, List Brit. Mus. Dipt., 1, 1848.
Megarhina ferox Theobald, Mon. Culic., i, 237, 1901.
Megarhinus ferox Blanchard, Les Moust., 255, 1905.
MEGARHINUS TRINIDADENSIS Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., xlviii, 247, 1906.
MEGARHINUS WIEDEMANNI Dyar and Knab, Smiths. Misc. Colls., Quart. Iss., xlviii, 258, 1906.
Megarhinus ferox Theobald, Mon. Culic., v, 90, 1910.
Megarhinus ferox Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 80, 1911.
Megarhinus trinidadensis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 943, 1917.
Megarhinus trinidadensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 458, 1925.

Female—Proboscis curved, black, with purple and green reflection. Palpi large, distinctly jointed, blunt, largely purple, with metallic scales and some silvery below. Occiput brilliant green, changing with the light, silvery on sides below. Prothoracic lobes light blue. Mesonotum brown-scaled in the middle, intermixed slightly with green, metallic green around the margins; pleuræ silver-scaled, below a blackish bare area. Abdomen green at base, dark blue terminally, with coppery scales; side-spots and venter golden, with a median dark purple line. Legs dark purple with metallic scales intermixed, femora golden below; fore and mid tarsi with the second joint white, the third more or less so; hind tarsi with the fourth and more or less of the fifth joint white. Wing-scales, where present, short and broad, purplish.

Male—Coloration of the female. Last joint of the palpi long and acuminate. Fore tarsi dark; mid tarsi with white on one side of the second joint, which may be absent; hind tarsi with the fourth and more or less of the fifth joint white. Hypopygium (Plate CVIII, Fig. 378): Side-piece conical, narrowed outwardly; basal lobe large, with three stout spines at tip and many short setæ. Clasper long, slender, uniform, with a long, sharp spine somewhat apically inserted. Tenth sternites large, narrow,

infuscated at tip, with a single laterally directed point. Ninth tergites forming a stout quadrate bridge, the angles roundedly prominent and bearing some fifteen setæ on outer aspect. Mesosome bulbous at base, the outer half attenuated, the plates reversely toothed on their inner margins.

Larva (Plate CVIII, Fig. 378)—Head rounded quadrate, longer than wide, the front margin deeply excavate mesially; antennæ small, slender, with two hairs and a little tuft outwardly. Eighth segment with a large lateral plate with two spinulose hairs on posterior margin. Air-tube about twice as long as wide, a pair of hair-tufts near base posteriorly. Anal segment about as long as wide, ringed by the plate, ventral brush feathered; dorsal tuft of two brushes on each side; a single spinulose lateral hair.

Venezuela, Trinidad, Surinam, Brazil.

The larvæ live in the water in tree-holes, feeding upon the other mosquito larvæ occurring in such situations.

MEGARHINUS HYPOPTES Knab

MEGARHINUS HYPOPTES Knab, Can. Ent., xxxix, 50, 1907.
Megarhinus hypoptes Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 80, 1911.
Megarhinus hypoptes Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 956, 1917.
Megarhinus hypoptes Dyar, Ins. Ins. Mens., xiii, 31, 1925.
Megarhinus hypoptes Dyar, Ins. Ins. Mens., xiii, 181, 1925.

Female—Proboscis curved, black with violet reflection. Palpi large, distinctly jointed, blunt, black, dark violet, and blue, with silvery scales below. Occiput dark metallic blue-green, coppery or black in some lights. Prothoracic lobes blue-green. Mesonotum dark-scaled centrally, mixed with blue and green, green-lined around the margins; pleuræ silver-scaled. Abdomen green at base, dark blue and violet terminally; lateral spots and venter golden, with a median dark violet stripe. Legs black, violet, and blue, the femora golden below; fore and mid tarsi with the second, third, and most of the fourth joints white. Wing-scales, where present, small and broad, violaceous.

Male—Coloration of the female. Fore tarsi dark; mid tarsi with some bright blue scales on the outer side of second joint; hind tarsi with the fourth and fifth joints white on one side only. Hypopygium (Plate CVIII, Fig. 379): Side-piece conical, tapered outwardly; basal lobe large, with three stout spines at tip and many short setæ. Clasper long and slender, uniform, a long, sharp spine not quite apically inserted. Tenth sternites large, narrow, infuscated at tip and with a single laterally directed point. Ninth tergites a quadrate, rather narrow bridge, the angles broadly roundedly prominent, bearing some fifteen coarse setæ on the outer faces. Mesosome bulbous at base, outer half attenuated, the plates reversely toothed on their inner margins.

Larva (Plate CVIII, Fig. 379)—Head rounded quadrate, longer than wide, front margin deeply emarginate in the middle; antennæ slender, rather long, with two hairs and a little tuft outwardly. Eighth segment with a large lateral plate, bearing two spinulose hairs on posterior margin. Anal segment as long as wide, ringed by the plate, which has long spines on its posterior margin; dorsal tuft of two brushes on each side; a single spinulose lateral hair; ventral brush feathered. Anal gills very short.

Panama and Ecuador.

The larvæ live in the water in tree-holes, feeding upon the other mosquito larvæ occurring in such situations.

Tribe URANOTÆNIINI

Uranotæniini Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 485, 1924.

This tribe contains a single genus of rather brilliantly ornamented mosquitoes, although they are of small size. The adults are not vicious biters, and are generally rare. The larvæ inhabit collections of ground-water, usually of small or very small size, like the water in hoof-prints of cattle in marshy ground, and they may occur in the limited water in plant tissues. Only one species is ever at all common, *Uranotænia geometrica*, and that only when bred. The adults are seldom seen on the wing, and are negligible economically. The species occur in temperate and tropical latitudes throughout the world.

Genus URANOTÆNIA Lynch Arribálzaga

URANOTÆNIA Lynch Arribálzaga, Rev. Mus. de La Plata, i, 375, 1891.
ANISOCHELOMYIA Theobald, The Entom., xxxviii, 52, 1905.
PSEUDOURANOTÆNIA Theobald, Journ. Econ. Biol., i, 33, 1905.
PSEUDOFICALBIA Theobald, Trans. Linn. Soc. Lond., Zoöl., xv, 89, 1912.
Uranotænia Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 435, 1925.
Uranotænia Dyar, Ins. Ins. Mens., xiii, 182, 1925.

With the characters of the tribe.

TABLE OF SPECIES

ADULT

1. Tarsi all darkly colored, without white 2
   Tarsi marked with white, especially the hind pair 8
2. Wing-scales pale, except in a contrasting stripe on costa 3
   Wing-scales dark, with white patches on middle of costa, apex, fifth vein and base of fork . . . . . *natalicæ* Lynch Arribálzaga
   Wing-scales dark, a line of bluish white ones at base of fifth vein 4
   Wing-scales dark, including those of fifth vein 7
3. Wing-scales white, the dark stripe on two-thirds of costa; head white, *leucoptera* Theobald
   Wing-scales pale, the dark stripe on whole of costa; head creamy, with dark erect scales . . . . . *hystera* Dyar and Knab
4. Mesonotum with median blue marking . . . . . *sapphirina* Osten Sacken
   Mesonotum without median blue marking 5
5. Vertex of head with a blue line on each side, joining the eye border 6
   A blue-white spot in center of vertex; no eye-border . . . . . *orthodoxa* Dyar
6. Larger; with blue and black pleural markings . . . . . *pallidoventer* Theobald
   Smaller; without pleural marking . . . . . *briseis* Dyar
7. Lateral blue line of mesonotum faint or absent, the two segments of the line, if shown, separated . . . . . *anhydor* Dyar
   This line distinct, the anterior segment in a black patch, *syntheta* Dyar and Shannon
8. All the tarsal joints marked with white at base and apex; mesonotum with median blue marking 9
   Terminal hind tarsals white, but no white at tarsal joints; mesonotum without median blue marking 10
   Apex of third joint and all of fourth hind tarsals white, and fifth (male); mesonotum with median blue marking . . . . . *urania* Shannon and Del Ponte
9. Hind tarsi with fourth and fifth joints white; abdomen with apical segmental triangular spots . . . . . *geometrica* Theobald
   Fourth hind tarsal not all white; abdomen with apical white bands on two segments . . . . . *pulcherrima* Lynch Arribálzaga

10. Mesonotum with a white marginal line from wing-base to anterior edge, *calosomata* Dyar and Knab
    Mesonotum without such a continuous line 11
11. Mesonotum brown; a bluish silvery line from base of wing half-way to anterior margin . . . . . *coatzacoalcos* Dyar and Knab
    Mesonotum testaceous; a black spot at wing-base, slightly centered with blue scales . . . . . *lowii* Theobald

MALE HYPOPYGIUM

1. Plates of mesosome united by a bridge 2
   Plates of mesosome separate on the two sides 3
2. Clasper with one obsolete terminal claw . . . . . *anhydor* Dyar
   Clasper with about fifteen terminal claws . . . . . *lowii* Theobald
3. Mesosomal plates with basal denticles 4
   Without this structure 5
4. Inner mesosomal plate single . . . . . *geometrica* Theobald
   Inner mesosomal plate furcate . . . . . *sapphirina* Osten Sacken
5. Inner forked plate less than outer hook . . . . . *pallidoventer* Theobald
   This plate exceeding the outer hook 6
6. Outer hook double, on a plate . . . . . *coatzacoalcos* Dyar and Knab
   This hook single, large 7
7. Basal lobe with projection; hook moderate . . . . *pulcherrima* Lynch Arribálzaga
   Basal lobe without distinct projection; hook large and recurved, *calosomata* Dyar and Knab

The following species are unknown in the male: *Leucoptera, hystera, nataliæ, syntheta, urania* (unplaced), *briseis*, and *orthodoxa.*

LARVA

1. Dorsal head-hairs not developed into spines, the upper pair multiple, *anhydor* Dyar
   Both pairs of head-hairs consisting of thick single spines 2
2. Antennæ glabrous . . . . . *geometrica* Theobald
   Antennæ more or less strongly spiculate 3
3. Lateral plate of eighth segment with five large teeth, *pulcherrima* Lynch Arribálzaga
   This plate with six to twelve teeth 4
4. Air-tube about twice as long as wide . . . . . *calosomata* Dyar and Knab
   Air-tube about three times as long as wide . . . . . *coatzacoalcos* Dyar and Knab
   Air-tube about five times as long as wide . . . . . { *sapphirina* Osten Sacken / *lowii* Theobald }

The larvæ of the following species are unknown: *Leucoptera, hystera, urania, nataliæ, syntheta, pallidoventer, briseis*, and *orthodoxa.*

URANOTÆNIA LEUCOPTERA (Theobald)

ANISCHELOMYIA LEUCOPTERA Theobald, Mon. Culic., iv, 575, 1907.
Anischelomyia leucoptera Theobald, Mon. Culic., v, 527, 1910.
Anischelomyia leucoptera Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 99, 1911.
Uranotænia leucoptera Dyar and Shannon, Ins. Ins. Mens., xii, 188, 1924.
Uranotænia leucoptera Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 442, 1925.

Female—Proboscis rather long, black, with violet reflection. Palpi very short. Occiput silvery or bluish white. Mesonotum dark red-brown, pleuræ dark gray-brown; a faint bluish silvery line along lateral margin to root of wing; prothoracic lobes with silvery tip. Abdomen brown-black, with

three pearly white patches, basal, median, and apical, and a smaller one between the basal and median; venter slightly paler. Legs entirely brown-black with coppery reflection. Wing entirely white-scaled, except a brown band on basal two-thirds of costa involving costa and first vein.

Male—Unknown.

Larva (Plate CIX, Fig. 380)—Of usual type; details shown in the figure.

Trinidad, Surinam, and British Guiana.

I have no data on the life history. Specimens sent by J. D. Leacock from Trinidad are obviously bred, probably from ground-pools.

URANOTÆNIA HYSTERA Dyar and Knab

URANOTÆNIA HYSTERA Dyar and Knab, Ins. Ins. Mens., i, 78, 1913.
Uranotænia hystera Dyar and Shannon, Ins. Ins. Mens., xii, 188, 1924.
Uranotænia hystera Dyar, Ins. Ins. Mens., xiii, 183, 1925.
Uranotænia hystera Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 454, 1925.

Female—Proboscis rather long, black. Palpi very short. Occiput brownish creamy white. Mesonotum dark bronzy brown, anterior angles and all of pleuræ and coxæ very pale yellowish, the colors contrasted and sharply limited by a faint whitish line to roots of wing. Abdomen black, the segments after the first with apical transverse white bands, the third more distinct and extended than the others; venter blackish. Legs blackish, with strong bronzy luster. Wing-scales all dark, but small and appressed to the veins except costally, where they form a costal band from base to apex, involving costa and first vein; a long streak of white scales at base of fifth vein.

Male—Unknown.

Larva—Unknown.

Panama, Colombia, and Venezuela.

I have no data on the life-history. Besides the original type from the Orinoco River, I have another female from Garrapata, Colombia, February 19, 1922 (F. A. Miller) and Mr. W. H. W. Komp has given me a specimen taken by himself in Almirante, Panama, February 1928.

URANOTÆNIA NATALIÆ Lynch Arribálzaga

URANOTÆNIA NATALIE Lynch Arribálzaga, Rev. Mus. de La Plata, ii, 164, 1899.
Uranotænia natalicæ Giles, Handb. Gn. or Mosq., 353, 1900.
PSEUDOURANOTÆNIA ROWLANDII Theobald, Journ. Econ. Biol., i, 33, 1905.
Uranotænia nataliæ and *Pseudouranotænia rowlandii* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 94 and 98, 1911.
URANOTÆNIA NOCTIVAGA Neiva and Pinto, Brazil Med., xxxvi, 374, 1922.
URANOTÆNIA ARGENTEOPENNIS Peryassú, A Folha Medica, iv, 2, 1923.
Uranotænia nataliæ Dyar and Shannon, Ins. Ins. Mens., xii, 188, 1924.
Uranotænia nataliæ Dyar, Ins. Ins. Mens., xiii, 183, 1925.
Uranotænia nataliæ Dyar, Ins. Ins. Mens., xiii, 216, 1925.
Uranotænia rowlandii Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdan (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 449, 1925.
URANOTÆNIA ARGENTINA Petrocchi, Rev. del Inst. Bact., iv, 725, 1927.

Female—Proboscis rather long, slender, black. Palpi very short. Occiput in front or wholly pearly-silvered. Mesonotum dark reddish brown; a lateral pearly-bluish line from the wing-base not reaching anterior edge; pleuræ dark brown, a short pearly line in the middle parallel to the line from wing base. Abdomen black; venter pale, with the colors separated in a straight line. Legs black, femora pale below, mid femora enlarged at

base. Wings dark-scaled, the costa appearing darker; several spots of silver scales, as follows: A long line on base of fifth vein; a similar line on base of sixth vein; short marks at bases of each fork of fifth vein; a patch at base of third vein; a patch on costa just above this, involving two veins; a patch at apex involving first vein and forks of second.

Male—Unknown.

Larva—Unknown.

Honduras, Venezuela, Surinam, Trinidad, Argentina.

This widely spread species is always rare and therefore little known. Mr. W. H. W. Komp found a specimen at Tela, Honduras, in which the white spottings of the wings were somewhat reduced. It has never been taken in Panama, but ought to occur.

URANOTÆNIA ANHYDOR Dyar

Uranotænia anhydor Dyar, Proc. U. S. Nat. Mus., xxxii, 128, 1907.
Uranotænia anhydor Dyar, Ins. Ins. Mens., iv, 50, 1916.
Uranotænia anhydor Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 926 and 1041, 1917.
Uranotænia anhydor Dyar, Proc. U. S. Nat. Mus., lxii, 99, 1922.
Uranotænia anhydor Dyar and Shannon, Ins. Ins. Mens., xii, 189, 1924.
Uranotænia anhydor Freeborn, Mosq. of Calif., 349, 1926.

Female—Proboscis moderate, swollen at tip, black. Palpi very short. Occiput rather dark brown-scaled, with a silvery line behind the eyes, the pair meeting in front at a sharp angle, continued backward on the prothoracic lobes. Mesonotum light brown, sparsely dark brown-scaled, a narrow broken or obsolete bluish silvery line laterally to root of wing; pleuræ light brown, a bluish silvery speck in the middle. Abdomen black, a few lateral white scales, tending to form basal segmental spots posteriorly; venter blackish. Wing-scales blackish, uniform, normal. Legs black, the femora whitish below.

Male—Coloration of the female. Palpi very short. Hypopygium (Plate CIX, Fig. 381): Side-piece stoutly conical, tapered outwardly, rounded at tip; basal lobe produced into a long cone directed laterally and basally, ending in a curved point, bearing a few small setæ. Clasper long, thick, slightly curved, with a very short but thick inserted terminal spine. Divergent rods (tenth sternites ?) slender, distant, capitate, with granular tips. Mesosomal plates connected by two bridges, one short, the other long and curved; tip of plate shortly furcate.

Larva (Plate CIX, Fig. 381)—Head elongate elliptical, bulging at the sides; antennæ rather small, scarcely spinous, with a single hair near base; head-hairs, upper of three fine hairs, lower single, coarse, and long, ante-antennal tufts multiple. Lateral plate of the eighth segment with an angular projection below the comb of nine sharp teeth on its posterior border. Air-tube about five times as long as wide, scarcely tapered; pecten not reaching the middle, followed by a large multiple hair-tuft. Anal segment longer than wide, ringed by the plate, which is spinose along its posterior margin; dorsal tuft of three long hairs on each side. Anal gills slender, not as long as the segment.

Southern California (San Diego).

The larvæ are found in spring in bodies of permanent water with cat-tails and other aquatic vegetation, though in summer these ponds may go dry.

URANOTÆNIA SYNTHETA Dyar and Shannon

URANOTÆNIA SYNTHETA Dyar and Shannon, Ins. Ins. Mens., xii, 189, 1924.

Female—Proboscis moderate, slightly swollen at tip, black. Occiput blackish, with a narrow, silvery bluish margin, meeting in a point in front and continued on the prothoracic lobes. Mesonotum reddish brown, sparsely scaled with dark brown; a lateral silvery blue narrow line to root of wing, divided into two segments, the anterior segment cutting a velvety black patch; pleuræ very pale brown. Abdomen dull black, the lateral margin with light scales indistinctly forming basal segmental patches; venter blackish. Legs black with bronzy reflection, the femora whitish below. Wing-scales black, normal; a line of dull white ones at base of first (subcostal) vein.

Male—Unknown.

Larva—Unknown.

Texas (Rio Grande Valley).

Mr. R. L. Turner bred a single female of this species, the only known specimen at present, from a ground-pool.

URANOTÆNIA PALLIDOVENTER Theobald

URANOTÆNIA PALLIDOVENTER Theobald, Mon. Culic., iii, 300, 1903.

Uranotænia pallidoventer Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 94, 1911.

Uranotænia pallidoventer Dyar and Shannon, Ins. Ins. Mens., xii, 189, 1924.

Uranotænia pallidoventer Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 451, 1925.

Female—Proboscis rather long, swollen at tip, black. Occiput black, margined with pearly blue, the stripes continued on prothoracic lobes and across the middle of the pleuræ. Mesonotum bronzy brown, with sparse dark brown scales; a pearly blue half-stripe from root of wing to middle of side; pleuræ red-brown, the color of dorsum. Abdomen black; venter broadly pale brown or whitish shaded. Legs black with bronzy luster, femora pale below, the middle pair widened and flat. Wing-scales black, dense on costa and first vein, forming a costal black border; a long line of white scales at base of fifth vein.

Male—Coloration of the female. Palpi very short. Antennæ plumose. Hypopygium (Plate CIX, Fig. 382): Side-piece short, thickly conical; basal lobe produced into a long arm, chitinized on basal margin, bearing a number of setæ. Clasper stout, excavate before tip, with very small terminal spine. Mesosome with a large, smooth hook and two small pieces. Divergent rods oblique, slightly capitate.

Larva—Unknown.

Brazil (Para) and Surinam.

URANOTÆNIA BRISEIS Dyar

URANOTÆNIA BRISEIS Dyar, Ins. Ins. Mens., xiii, 216, 1925.

Female—Proboscis rather long, swollen at tip, black. Occiput black, edged with pearly blue, continued on prothoracic lobes. Mesonotum bronzy brown, with sparse dark brown scales; pleuræ reddish brown. Abdomen black; venter paler. Legs black, with bronzy reflections, femora pale below, the middle femora broad and flat. Wing-scales black, emphasized

on costa and first vein; a line of pearly scales at base of fifth vein and a short one at base of first vein. A very small species; as small as *lowii*.

Male—Unknown.

Larva—Unknown.

Venezuela (Catatumbo River).

A single female is before me, taken by Major L. H. Dunn.

URANOTÆNIA ORTHODOXA Dyar

URANOTÆNIA ORTHODOXA Dyar, Ins. Ins. Mens., ix, 118, 1921.
Uranotænia orthodoxa Dyar and Shannon, Ins. Ins. Mens., xii, 190, 1924.
Uranotænia orthodoxa Dyar, Ins. Ins. Mens., xiii, 193, 1925.
Uranotænia orthodoxa Bonne and Bonne-Weptser, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 454, 1925.

Female—Proboscis rather long, swollen at tip, black. Occiput black, with silvery white spot at vertex. Prothoracic lobes bright blue. Mesonotum bronzy brown, with sparse blackish scales; a rather broad bright blue half-line from root of wing; pleuræ pale brown. Abdomen black; venter pale brown. Legs black, femora pale below, middle femora broad and flat toward base. Wing-scales black, emphasized on costa and first vein; a line of silvery scales at base of fifth vein and short one at base of first vein.

Male—Unknown.

Larva—Unknown.

Costa Rica.

Dr. Anastasio Alfaro bred two females of this species, one much damaged, from ground-pools.

URANOTÆNIA SAPPHIRINA (Osten-Sacken)

AËDES SAPPHIRINUS Osten Sacken, Trans. Am. Ent. Soc., ii, 47, 1868.
URANOTÆNIA SOCIALIS Theobald, Mon. Culic., ii, 340, 1901.
URANOTÆNIA COQUILLETTI Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 186, 1906.
Uranotæia sapphirinus and *socialis* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 901 and 905, 1917.
Uranotænia sapphirinus Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 117, 1921.
Uranotænia sapphirinus and *socialis* Dyar, Proc. U. S. Nat. Mus., lxii, 98, 1922.
Uranotænia sapphirinus Dyar and Shannon, Ins. Ins. Mens., xii, 190, 1924.

Female—Proboscis rather long, swollen at the tip, black. Occiput black, with scattered blue scales along anterior margin. A line of blue scales on prothoracic lobes. Mesonotum reddish brown; a narrow median line of blue scales running back to the scutellum, sometimes interrupted posteriorly; a marginal blue half-line forward from the wing-root; pleuræ and coxæ pale brown, with a small patch of blue scales centrally. Abdomen black, with three white bands more or less developed, subbasal, median, and subapical; venter sordid yellowish. Legs black, femora pale below; tips of femora snowy white, of tibiæ with a white spot. Wing-scales black, a long line of white ones at base of fifth vein.

Male—Coloration of the female. Palpi very short. Antennæ plumose. Hypopygium (Plate CX, Fig. 383): Side-piece short and stout, rounded conical; basal lobe with a long lateral projection tapering to a point. Clasper short, thick, with minute terminal inserted spine. Divergent rods large, slightly granulate at tips; mesosomal plate furcate, one limb long and pointed; three small hooks and a patch of denticles at base.

Larva (Plate CX, Fig. 383)—Head elongate elliptical, longer than wide; antennæ short, with a hair near base; head-hairs single, each a thick spinulated rod, anteantennal tuft in four. Lateral plate of the eighth segment with eight teeth on its posterior edge. Air-tube cylindrical, uniform, about five times as long as wide; pecten not reaching the middle, followed by a six-haired tuft. Anal segment longer than wide, ringed by the plate, ventral brush posterior, plate spined posteriorly; dorsal tuft of three long hairs on each side. Anal gills shorter than the segment, pointed.

Eastern United States from New Hampshire and New York to Florida and Texas, Honduras, Antilles, Virgin Islands.

The larvæ live in ground-pools of a semipermanent nature, such as commonly harbor *Anopheles* larvæ. With the long, black head and habit of floating flatly in the water (although beneath the surface), these larvæ at first glance may be mistaken for *Anopheles*. The adults will bite under favorable conditions, but are very seldom met with.

URANOTÆNIA URANIA Shannon and Del Ponte

URANOTÆNIA URANIA Shannon and Del Ponte, new species (here published).

"*Female*—Coloration of the male.

"*Male*—Proboscis slender and long, greatly swollen at tip, black. A blue spot on vertex of head; prothoracic lobes metallic blue. Mesonotum rather light brown, a darker stripe in the middle, edged on each side with luteous; a band of blue scales in this central dark area and on scutellum. Abdomen with irregular white bands (the abdomen is removed in the specimen). Legs black, hind tarsi with outer fourth of third joint, fourth and fifth white. Wing-scales largely lost in the specimen. Hypopygium: Side-piece short and stoutly conical, the basal lobe forming a long rugose projection inward. Clasper stout, about as long as side-piece, with a small terminal spine. Outer hook large, single, from triangular base; inner hook double, one arm straight and denticulate at tip; opposed pieces stout, reaching middle of side-piece."—Shannon and Del Ponte.

Larva—Unknown.

Argentina.

One of the types has been deposited in the U. S. National Museum by the kindness of the Instituto Bacteriologico of Buenos Aires of the Argentine Government.

URANOTÆNIA GEOMETRICA Theobald

URANOTÆNIA GEOMETRICA Theobald, Mon. Culic., ii, 247, 1901.
Uranotænia geometrica Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 96, 1911.
Uranotænia geometrica Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 918, 1917.
Uranotænia geometrica Dyar and Shannon, Ins. Ins. Mens., xii, 190, 1924.
Uranotænia geometrica Dyar, Ins. Ins. Mens., xiii, 30, 1925.
Uranotænia geometrica Dyar, Ins. Ins. Mens., xiii, 183, 1925.
Uranotænia geometrica Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 444, 1925.

Female—Proboscis long, swollen at tip, black, paler beneath. Occiput black, margined with metallic blue, continued by a line of blue on prothoracic lobes. Mesonotum yellow-brown, with sparse dark brown scales, a small median blue spot posteriorly; a blue half-line forward from base of wing; metallic blue scales in scutellum; pleuræ light brown, with a patch of

blue scales centrally. Abdomen black, with triangular apical segmental white spots dorsally and rounded ones on the sides; venter dull yellowish. Legs black, femora pale beneath, femora and tibiæ with white apical spots; tarsi with small white rings involving both ends of the joints, the last two hind tarsals entirely white. Wing-scales black, a long line of blue ones at base of fifth vein.

Male—Coloration of the female. Palpi very short. Antennæ plumose. Hypopygium (Plate CX, Fig. 384): Side-piece shortly and stoutly conical; basal lobe thickened, pocket-like, not produced into a projection. Divergent rods stout and long, a little irregular in outline; mesosomal plate a slender rod; at base three large hooks and several small denticles.

Larva (Plate CX, Fig. 384)—Head elongate, rounded, bulging at the sides; antennæ small, a single hair at basal third; head-hairs single, each a stout spinulose rod. Lateral plate of the eighth segment with the comb on its posterior margin of six teeth. Air-tube slender, straight, about five times as long as wide; pecten small, followed by a large tuft before the middle. Anal segment longer than wide, ringed by the plate, which is spined posteriorly; ventral brush slight, posterior; dorsal tuft of three hairs on each side; a small lateral tuft. Anal gills about as long as the segment, tapered.

Mexico, Costa Rica, Panama, Ecuador, Venezuela, the Guianas, Trinidad, Brazil, Argentina.

The larvæ live in temporary and subpermanent ground-water, and sometimes in the rainy season become very abundant. The adults, however, are retiring in habit and seldom seen.

URANOTÆNIA PULCHERRIMA Lynch Arribálzaga

URANOTÆNIA PULCHERRIMA Lynch Arribálzaga, Rev. Mus. de La Plata, ii, 165, 1891.
URANOTÆNIA APICALIS Theobald, Mon. Culic., iii, 298, 1903.
Uranotænia pulcherrima Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 908, 1917.
Uranotænia pulcherrima Dyar, Ins. Ins. Mens., ix, 150, 1921.
Uranotænia pulcherrima Dyar and Shannon, Ins. Ins. Mens., xii, 190, 1924.
Uranotænia pulcherrima Dyar, Ins. Ins. Mens., xiii, 184, 1925.
Uranotænia pulcherrima Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 447, 1925.
Uranotænia pulcherrima ELNORA Paterson and Shannon, Ter. Reun. Soc. Arg. de Pat. Reg. del Norte Tucumán, Mosq. de Embarcación, 3, 1927.

Female—Proboscis long, slender, slightly enlarged apically, black. Occiput black, with metallic blue border. Prothoracic lobes metallic blue. Mesonotum reddish brown, with sparse dark brown scales; a blue half-line forward from base of wing, on a black ground; some blue scales medianly behind the middle; pleuræ light brown, with small central black spot and metallic blue scales; a green-blue spot on scutellum. Abdomen black, with three white bands more or less developed, subbasal, median, and subapical; venter blackish. Legs brown-black, femora and tibiæ with white apical spots; tarsi with narrow white rings involving both ends of the joints, the fourth hind tarsal with only a small black ring, the fifth all white. Wing-scales black.

Male—Coloration of the female. Palpi very short. Antennæ plumose. Hypopygium (Plate CX, Fig. 385): Side-piece shortly conical; basal lobe thickened and produced inward into a small point. Clasper short and thick, a little excavate before apex, with a minute inserted terminal spine. Divari-

cate rods large, capitate, slightly granular. Mesosomal plate forked, forming two hooks, a single hook at base.

Larva (Plate CX, Fig. 385)—Head elongate elliptical, slightly bulging at the sides; antennæ small, sparsely spined, with long terminal spines; head-hairs single, each a large, thick, spinulose rod, swollen at base; anteantennal tuft normal, multiple. Lateral plate of eighth segment large, bearing on its posterior margin a comb of five sharp teeth. Air-tube slightly tapered, the tip slightly curved forward; pecten obsolete; a pair of large tufts before the middle on posterior margin. Anal segment longer than wide, ringed by the plate, which is spined on posterior border ; ventral brush small, posterior; dorsal tuft of three hairs on each side; a rather large multiple lateral tuft. Anal gills about as long as the segment.

Honduras, Panama, Ecuador, Colombia, Venezuela, British Guiana, Brazil, Argentina.

The larvæ live in small ground-pools, also in leaf-bases of Bromeliaceæ.

URANOTÆNIA CALOSOMATA Dyar and Knab

URANOTÆNIA CALOSOMATA Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 200, 1907.
Uranotænia calosomata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 98, 1911.
Uranotænia calosomata Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 922, 1917.
Uranotænia calosomata var. ALBITARSIS Gordon and Evans, Ann. Trop. Med. and Par., xvi, 335, 1922.
Uranotænia calosomata Dyar and Shannon, Ins. Ins. Mens., xii, 191, 1924.
Uranotænia calosomata Dyar, Ins. Ins. Mens., xiii, 184, 1925.
Uranotænia calosomata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 453, 1925.

Female—Proboscis rather long, swollen at tip, black. Occiput black, with a narrow linear white margin, running to a point between the eyes, and continued by a vertical tuft of white hairs. Prothoracic lobes with a narrow white line on their lower border. Mesonotum deep brown-black, a narrow white marginal line from wing-base to anterior angle; pleuræ luteous, with a narrow, curved, white line across the middle. Abdomen black, the segments with broad, apical, creamy white bands; venter slightly browner than dorsum, almost as dark. Legs brown-black, femora whitish beneath; femora and tibiæ with white apical spots; hind tarsi with third to fifth joints white, of a somewhat grayish cream cast. Wing-scales black; first, fifth, and sixth veins white-scaled at base for two-fifths the length of wing, the line on first vein broader.

Male—Coloration of the female. Palpi very short. Antennæ plumose. Hypopygium (Plate CXI, Fig. 386): Side-piece shortly and stoutly conical; basal lobe large, pocket-like and expanded, with three stout spines at tip and short setæ. Divergent rods large, constricted subbasally, narrowed at tip, with a small granulose knob. Mesosomal plate consisting of a slender rod, slenderly and lengthly forked and a single large hook well recurved.

Larva (Plate CXI, Fig. 386)—Head elongate elliptical, bulging at the sides; antennæ small, stout, spinulose, a single hair near base; head-hairs single, each a stout spine, anteantennal tuft multiple. Lateral plate of the eighth segment large, with a comb of nine sharp teeth along its posterior margin. Air-tube slightly tapered, about four times as long as wide; pecten reaching near the middle, followed by a large multiple tuft. Anal seg-

ment longer than wide, ringed by the plate, which is spinose along its posterior border; dorsal tuft of five long hairs on each side; lateral tuft small, multiple; ventral brush of but few hairs, posterior. Anal gills about as long as the segment, pointed.

Panama, Colombia, Brazil.

The larvæ were found in water in hoof-prints in a swampy meadow and other small ground-pools. Both sexes are attracted to light, but in general the species is rare and seldom seen.

URANOTÆNIA COATZACOALCOS Dyar and Knab

Uranotænia coatzacoalcos Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 186, 1906.
Uranotænia typhlosomata Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 200, 1907.
Uranotænia coatzacoalcos, basalis and *typhlosomata* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., 916, 917 and 924, 1917.
Uranotænia coatzacoalcos Dyar, Ins. Ins. Mens., xi, 71, 1923.
Uranotænia coatzacoalcos Dyar, Ins. Ins. Mens., xiii, 185, 1925.
Uranotænia typhlosomata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 454, 1925.

Female—Proboscis rather long, swollen at tip, black. Occiput black, edged with bluish silvery. Prothoracic lobes with a long silver line. Mesonotum deep brown, with sparse blackish scales; a bluish silvery half-line forward from base of wing; pleuræ paler brown, with a narrow silvery line across the middle. Abdomen black, without marks, or the segments with more or less distinct small basal segmental whitish bands; venter dark brown. Legs black, femora whitish below; femora and tibiæ with apical white spots; outer half of third, fourth, and fifth hind tarsi white with creamy evanescent reflection. Wing-scales black, bases of first and fifth veins variously ornamented with bluish silvery scales. Northern specimens *(coatzacoalcos = basalis)* generally have the first vein lengthly white-scaled, the fifth not; southern specimens *(typhlosomata)* have the proportions reversed, the fifth being white-scaled, the first not.

Male—Coloration of the female. Palpi very short. Antennæ plumose. Hypopygium (Plate CXI, Fig. 387): Side-piece stout and shortly conical; basal lobe large, with thickened margin, pocket-like, the inner edge produced into a slender horn; several rather stout setæ at tip. Clasper short, broad, a little attenuated centrally, with minute inserted terminal spine. Divaricate rods broad, plate-like basally, the tips narrowed and small; mesosomal plate slender, forked, each limb forming a hook, outwardly of it two inturned hooks from a small triangular plate.

Larva (Plate CXI, Fig. 387)—Head elongate elliptical, bulging at the sides; antennæ small and stout, a single hair near base; head-hairs single, each a stout spine, anteantennal tuft normal, multiple. Lateral plate of the eighth segment large, with a pecten of about twelve sharp spines on its posterior border. Air-tube about five times as long as wide; pecten reaching near the middle, followed by a large multiple tuft. Anal segment longer than wide, ringed by the plate, which is spinose along its posterior border; dorsal tuft of five long hairs on each side; lateral tuft small, multiple; ventral brush of but few hairs, posterior. Anal gills not as long as the segment, pointed.

Mexico, Costa Rica, Panama, Ecuador, Venezuela, Trinidad.

The larvæ live in small ground-pools, especially along streams. Dr. Root found the larvæ in tree-holes at Guamitas, Venezuela.

URANOTÆNIA LOWII Theobald

URANOTÆNIA LOWII Theobald, Mon. Culic., ii, 339, 1901.
URANOTÆNIA CONTINENTALIS Dyar and Knab. Journ. N. Y. Ent. Soc., xiv, 187, 1906.
URANOTÆNIA MINUTA Theobald, Mon. Culic., iv, 559, 1907.
Uranotænia lowii and *continentalis* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 911 and 914, 1917.
Uranotænia lowii Dyar, Proc. U. S. Nat. Mus., lxii, 97, 1922.
Uranotænia lowii Dyar and Shannon, Ins. Ins. Mens., xii, 192, 1924.
Uranotænia lowii Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg., No. 13, 439, 1925.
Uranotænia lowii Dyar, Ins. Ins. Mens., xiii, 31, 1925.
Uranotænia lowii Dyar, Ins. Ins. Mens., xiii, 185, 1925.
Uranotænia lowii Dyar, Ins. Ins. Mens., xiii, 216, 1925.

Female—Proboscis moderate, black. Occiput black, with a border of silvery blue scales. Prothoracic lobes with silvery blue scales. Mesonotum light testaceous, with a black central stripe; a black spot in front of the wing-base with a center of silvery blue scales; pleuræ yellowish, with brown central spot. Abdomen black, the sides of the third, fifth, and sixth segments with large silvery patches on the apices of those segments; venter golden yellowish. Legs black, femora pale below; femora and tibiæ with more or less distinct apical white spots; apical half of third, fourth, and fifth hind tarsal joints white with a creamy tint. Wing-scales black, somewhat intensified along the costa; a line of blue scales at base of fifth vein, and one slightly dislocated preceding it.

Male—Coloration of the female. Palpi very short. Antennæ slightly more plumose than those of the female. Hypopygium (Plate CXI, Fig. 388): Side-piece short and stoutly conical; basal lobe thickened on upper margin of the excavation, forming an inwardly projecting angle which is blunt; many not very coarse setæ. Clasper broad, rather short, elliptical, with about fifteen terminal short claws. Divaricate rods large, angled a little outwardly, with small tips; mesosomal plates broad, united by a broad bridge, with blunt lateral branch or furcation; a rounded triangular process outwardly of it.

Larva (Plate CXI, Fig. 388)—Head elongate elliptical, bulging on the sides; antennæ small, stout, thickened at base, slightly spinulose, a single hair before the middle; head-hairs single, thickened, finely spinulose, anteantennal tuft normal, multiple. Lateral plate of the eighth segment large, with a comb of six to eight long teeth along its posterior border. Air-tube scarcely tapered, about five times as long as wide, pecten reaching nearly to middle, followed by a multiple tuft. Anal segment longer than wide, ringed by the plate, which is spinose along its posterior border; dorsal tuft of five long hairs on each side; lateral tuft small, multiple; ventral brush a few tufts, posterior. Anal gills short, with blunt tips.

Gulf States, Antilles, Panama, Ecuador, Colombia, Venezuela, Trinidad, the Guianas, Argentina.

The larvæ occur in ground-pools, principally the grassy margins of lakes. The adults are very small, and are not known certainly to bite. Mr. R. C. Shannon has shown me specimens taken by himself in Argentina (Jujuy, Chaco, and Misiones).

Tribe ANOPHELINI

Anophelini Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 485, 1924.

A group of mosquitoes not very numerous in species, but of much economic importance, as in this tribe are found the vectors of malaria. The adults have long palpi in the female, as well as in the male, and are the only species of mosquitoes so characterized. Distribution is throughout temperate and tropical countries, one species penetrating rather far north. The larvæ are characterized by a short breathing-tube, and are surface feeders in permanent or semipermanent water. A few species frequent tree-holes and a few others the water in the leaf-bases of epiphytic Bromeliaceæ. The adults commonly fly just after dusk, much less by daylight or complete darkness. The species pass the unfavorable season, cold or dry, in the adult state.

Genus ANOPHELES Meigen

ANOPHELES Meigen, Syst. Beschr. Eur. Zweifl. Ins., i, 10, 1818.
CYCLOLEPPTERON Theobald, Journ. Trop. Med., iv, 234, 1901.
GRASSIA Theobald (not Fisch), Journ. Trop. Med., v, 181, 1902.
STETHOMYIA Theobald, Journ. Trop. Med., v, 181, 1902.
HOWARDIA Theobald (not Dalla Torre), Journ. Trop. Med., v, 181, 1902.
ROSSIA Theobald (not Bonaparte), Journ. Trop. Med., v, 181, 1902.
LAVERNIA Theobald (not Grassi and Feletti), Journ. Trop. Med., v, 181, 1902.
CELLIA Theobald, Journ. Trop. Med., v, 183, 1902.
MYZOMYIA Blanchard, C. R. Soc. de Biol. Paris, liv, 795, 1902.
PYRETOPHORUS Blanchard, C. R. Soc. de Biol. Paris, liv, 795, 1902.
MYZORHYNCHUS Blanchard, C. R. Soc. de Biol. Paris, liv, 795, 1902.
NYSSORHYNCHUS Blanchard, C. R. Soc. de Biol. Paris, liv, 795, 1902.
ARRIBALZAGIA Theobald, Mon. Culic., iii, 81, 1903.
ALDRICHIA Theobald, Mon. Culic., iii, 353, 1903.
CHRYSTYA Theobald, Rep. Sleep. Sick. Comm., Roy. Soc. Lond., iii, 34, 1903.
LOPHOMYIA Giles, Journ. Trop. Med., vii, 336, 1904.
LOPHOSCELOMYIA Theobald, The Ent., xxxvii, 12, 1904.
KERTESZIA Theobald, Ann. Mus. Nat. Hung., iii, 66, 1905.
NOTOTRICHA Coquillett, U. S. Dep. Agr., Bur. Ent., Tech. Ser. No. 11, 12, 1906.
CHAGASIA Cruz, Brazil Med., xx, 199, 1906.
CŒLODIAZESIS Dyar and Knab, Journ. N. Y. Ent. Soc., xiv, 177, 1906.
PSEUDOMYZOMYIA Theobald, Mon. Culic., iv, insert slip, 1907.
MYZORHYNCHELLA Theobald, Mon. Culic., iv, 23, 1907.
FELTINELLA Theobald, Mon. Culic., iv, 22, 1907.
NEOCELLIA Theobald, Mon. Culic., iv, 23, 1907.
MANGUINHOSIA Lutz, Um Nov. Gen. Braz. Anoph., 1907.
CALVERTIA Ludlow (not Warren), Can. Ent., xli, 22, 1909.
CALVERTINA Ludlow, Can. Ent., xli, 234, 1909.
CHRISTOPHERSIA James, Palud., i, 33, 1910.
NYSSOMYZOMYIA James, Palud., i, 37, 1910.
NEOMYZOMYIA Theobald, Mon. Culic., v, l, 1910.
ALDRICHINELLA Theobald, Mon. Culic., v, 3, 1910.
NEOSTETHOPHELES James, Rec. Ind. Mus., iv, 98, 1910.
PATAGIAMYIA James, Rec. Ind. Mus., iv, 98, 1910.
DACTYLOMYIA Newstead and Carter, Ann. Trop. Med. and Par., iv, 377, 1910.
PROTERORHYNCHUS Brèthes, Bol. Ins. y Pat. Veg., i, 10, 1912.
CYCLOPHORUS Eysell, Arch. Schiffs u. Trop. Hyg., xvi, 421, 1912.
Anopheles Dyar, Proc. U. S. Nat. Mus., lxii, 1922.
Anopheles Dyar and Shannon, Journ. Wash. Acad. Sci., xiv, 485, 1924.
Anopheles Christophers, Indian Med. Res. Mem., iii, 1924.
Anopheles Bonne and Bonne-Weptser, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop, Hyg., No. 13, 494, 1925.
Anopheles Dyar, Ins. Ins. Mens., xiii, 186, 1925.

With the characters of the tribe. Only the one genus is represented in America. The subgenus *Myzorhynchella* is of uncertain standing, as no males have been made known of any of the species. It may not be different from *Nyssorhynchus,* and is tentatively rejected.

Table of Species

ADULT

1. Tarsi, especially the hind pair, marked with white 2
   Tarsi dark, rarely a little white at base of first hind tarsal 24
2. Hind tarsi more or less continuously white-marked, differing from the fore and mid tarsi 3
   Legs with white, the hind tarsi not continuously white-ringed, not marked in a different way from the others 13
3. Last two hind tarsals white; legs speckled . . . . *annulipalpis* Lynch Arribálzaga
   Last three hind tarsals white or white-marked; legs not speckled 4
4. Fifth hind tarsal entirely white 5
   Fifth hind tarsal with a black ring 8
5. Third and fourth hind tarsals with basal black rings . . . . . *nigritarsis* Chagas
   Third to fifth hind tarsals white 6
6. Second hind tarsal largely black, with narrow apical ring, *pictipennis* Philippi
   Second hind tarsal two-thirds black . . . . . { *parvus* Chagas / *guarani* Shannon
   Second hind tarsal three-fifths black . . . . . *lutzii* Cruz
   Second hind tarsal one-half or more black; first hind tarsal with white tip; white ring of second fore tarsal wider than that of third, *albitarsis* Lynch Arribálzaga
   Second hind tarsal slightly less than half black; first hind tarsal with white tip; white ring of third fore tarsal wider than that of second . . . . *darlingi* Root
   Second hind tarsal considerably less than half black; first hind tarsal without definite white tip 7
7. Mid tarsal joints without definite white rings; fork of fourth vein of wing white-scaled; last two abdominal segments not heavily white-scaled dorsally, *argyritarsis* Robineau-Desvoidy
   Usually with white rings on first and second mid tarsals; fork of fourth vein black-scaled; dorsal abdominal scales usually slender and sparsely distributed, except on the last two segments, which are heavily white-scaled, *argyritarsis braziliensis* Chagas
8. Fifth hind tarsal only with a black ring 9
   Other joints preceding the fifth with black rings also 12
9. Second hind tarsal nearly or quite one-half black 10
   Second hind tarsal less than or not more than one-third black 11
10. Next to the last segment of female palpi usually mainly black; tip of lower branch of second vein of wings usually white-scaled . . . *albimanus* Wiedemann
    Next to last segment of female palpi usually mainly white; tip of lower branch of second vein usually black-scaled . . . . . *bachmanni* Petrocchi
11. Light-colored scales of wing usually white; second hind tarsal usually more than one-fourth black; white rings on fore tarsi narrower, especially that of the first fore tarsal . . . . . *evansi* Brèthes
    Light-colored wing-scales usually yellowish; second hind tarsal usually less than one-fourth black; white rings on fore tarsi broader, including that of first, *tarsimaculatus* Goeldi
12. Black rings at bases of third and fifth hind tarsals . . . . *rondoni* Neiva and Pinto
    Black rings at bases of fourth and fifth hind tarsals . . *cuyabensis* Neiva and Pinto
    Black rings at bases of third, fourth, and fifth hind tarsals, *tricnnulatus* Neiva and Pinto

13. Hind tarsi with white bands on the segments 14
Tarsi with numerous white specks, and on tibiæ 18
Tarsi with white specks at the joints only 19

14. White rings basal on the joints 14*a*
White rings apical on the joints 16

14*a*. White rings at bases of tarsal joints cut by narrow subbasal rings, *bathanus* Dyar
These white rings broad, uninterrupted 15

15. **Wing-scales elliptical, pointed . . . . . *farjardi* Lutz**
Wing-scales inflated, rounded . . . . . *bonneæ* Root

16. Last three joints of hind tarsi without white . . . . . *baliviensis* Theobald
All the joints of hind tarsi white-marked 17

17. **Apical tarsal white marks broad . . . . . *cruzii* Dyar and Knab**
These markings narrow . . . . . *bellator* Dyar and Knab

18. **Wing-scales distinctly inflated . . . . .** *mediopunctatus* Theobald; *punctimacula* Dyar and Knab; *intermedius* Peryassú; *fluminensis* Root

Wing-scales scarcely inflated or linear . . . . . *maculipes* Theobald; *apicimacula* Dyar and Knab; *pseudomaculipes* Peryassú

19. **Wing-scales distinctly inflated . . . . . *grabhamii* Theobald**
Wing-scales narrow, linear 20

20. **A few white specks on tibiæ and tarsi . . . . . *vestitipennis* Dyar and Knab**
Without white specks on the legs 21

21. **Wing-scales dark; three darker costal patches not contrasted; a line of yellow scales across apex more or less distinct . . . . . *mattogrossensis* Lutz and Neiva**
Wing-scales lighter, the costal patches distinctly relieved 22

22. **Spottings less relieved; no distinct white scales outwardly on costa 23**
Spottings more relieved; distinct white scales preceding the last costal spot, *peryassui* Dyar and Knab

23. **Fore tarsi with increased white rings . . . . . *celidopus* Dyar and Shannon**
Hind tarsi with increased white rings . . . . . *?alagoanii* Peryassú

24. **Hind tibiæ white at apex 25**
Hind tibiæ without white 26

25. **Hind tibial white extensive, involving base of first tarsal . . . . *gilesi* Peryassú**
Hind tibial white moderate, not involving the tarsi . . . . . *eiseni* Coquillett

26. **Mesonotum with a white median line . . . . . *nimbus* Theobald**
Not so marked 27

27. Wings with yellow costal spot 28
Not so marked 29

28. **Third vein entirely yellow . . . . . *pseudopunctipennis* Theobald**
Third vein largely dark . . . . . *punctipennis* Say

29. **Wings with small yellow specks, especially one apically . . . . *crucians* Wiedemann**
Without any yellow specks 30

30. **Wings with distinct black spots 31**
Wings without distinct black spots 32

31. **A small bronzy apical spot on wing . . . . . *maculipennis* Meigen**
Without this character . . . . . *quadrimaculatus* Say

32. **Small species with rounded thorax; palpi not pale-ringed . . . *barberi* Coquillett**

Moderate-sized species, normal; palpi faintly pale-ringed . . . *atropos* Dyar and Knab; *walkeri* Theobald

MALE HYPOPYGIUM

1. Side-piece with a spinose basal lobe *(Chagasia)* 2
   Side-piece without basal lobe 3
2. Lobe of side-piece with two spines . . . . . *farjardi* Lutz
   Lobe of side-piece with many spines . . . . . { *bonneæ* Root / *bathanus* Dyar
3. One basal spine, two accessory spines 4
   One basal spine on side-piece, no accessory spine *(Stethomyia)* . . *nimbus* Theobald
   Two basal spines on side-piece, no accessory spine *(Anopheles)* 5
4. Internal spine stout, arising between basal spine and accessory spines *(Kerteszia)* . . . . . { *bellator* Dyar and Knab / *cruzii* Dyar and Knab
   Internal spine slender, arising between accessory spines and tip of side-piece *(Nyssorhynchus)* 20
5. Outer basal spine slender, long, not as stout as the inner 6
   Outer basal spine stout like inner, or stouter 12
6. Basal spines remote; membranous lobe spined and with curved filaments, *mediopunctatus* Theobald
   Basal spines approximate; membranous lobe with three appendages 7
7. Ædœagus with one pair of terminal leaflets . . . . . *vestitipennis* Dyar and Knab
   Ædœagus with two pairs of terminal leaflets 8
   Ædœagus with more than two pairs of leaflets 9
8. Terminal leaflets very large . . . . . *pseudomaculipes* Chagas
   Terminal leaflets moderate . . . . . *grabhamii* Theobald
9. Three pairs of very short leaflets . . . . . *intermedius* Peryassú
   Terminal leaflets long, three to five pairs 10
10. Terminal leaflets margined; two or three pairs of long secondary ones, *punctimacula* Dyar and Knab
    Terminal leaflets not margined 11
11. One primary, four pairs of short secondary ones . . . . *apicimacula* Dyar and Knab
    Two primary, three pairs of short secondary ones . . . . . *fluminensis* Root
12. Ædœagus with serrate leaflets 13
    Leaflets of ædœagus, if present, smooth 14
13. Two pairs of delicate, almost invisible, leaflets . . . . *pseudopunctipennis* Theobald
    One pair of large distinct leaflets . . . . . *eiseni* Coquillett
14. Ædœagus without leaflets . . . . . *barberi* Coquillett
    Ædœagus with three or four pairs of terminal leaflets 15
15. Outer spines of basal membranous lobe spatulate or spoon-shaped 16
    These spines slender, spine-shaped 18
16. Inner spine of lobe longer and stouter than the middle one, *quadrimaculatus* Say
    Middle spine longer and stronger than the inner one 17
17. Basal pair of leaflets of the ædœagus small and slender, disproportionate to the others . . . . . *atropos* Dyar and Knab
    Basal pair of leaflets smallest, but not disproportionately so . . . *walkeri* Theobald
18. Basal lobe with the outer spines reduced to hairs; ædœagus with four pairs of leaflets . . . . . *crucians* Wiedemann
    Outer spines of basal lobe distinct; three pairs of leaflets 19
19. Leaflets of ædœagus long, slender, pointed . . . . . *maculipennis* Meigen
    These leaflets moderate, stout, subequal . . . . . *punctipennis* Say
20. Tip of mesosome with a single pair of reflexed leaflets 21
    Tip of mesosome without leaflets 22

21. Tip of mesosome much prolonged, heavily chitinized; leaflets long, nearly straight, usually not obviously serrate . . . . . *darlingi* Root
Tip of mesosome less prolonged, not so heavily chitinized; leaflets short, curved and serrate . . . . . *argyritarsis* Robineau-Desvoidy
Tip of mesosome produced into a hook; leaflets slender, smooth . . *parvus* Chagas

22. Fused dorsal membranous lobe bare 23
These lobes hairy except sometimes at tip 25

23. These lobes low and mound-like, shorter than the mesosome, *albitarsis* Lynch Arribálzaga
These lobes tall, as long or longer than the mesosome 24

24. Tip of membranous lobes rounded, with a median indentation; two bladder-like expansions dorsally before tip . . . . . *albimanus* Wiedemann
Tip of lobes expanded laterally by a pair of curved, triangular chitinizations, *bachmanni* Petrocchi

25. Tip of mebranous lobes rounded or slightly truncate, with short hairs; lobe-like dorsal hairy expansions smaller . . . . . *tarsimaculatus* Goeldi
Tip of membranous lobe with striate or folded lateral expansions which do not bear hairs; lobe-like dorsal hairy expansions larger . . . . . *evansi* Brèthes

The following species are unknown in the male: *Triannulatus, rondoni, cuyabensis, pictipennis, lutzii, nigritarsis, gilesi, annulipalpis, guarani, peryassui, mattogrossensis, celidopus, alagoanii, maculipes,* and *boliviensis.*

LARVA

1. Comb of the eighth segment with the teeth all long . . { *cruzii* Dyar and Knab / *bellator* Dyar and Knab
Teeth of the comb alternatingly long and short . { *punctimacula* Dyar and Knab / *apicimacula* Dyar and Knab / *vestitipennis* Dyar and Knab / *mediopunctatus* Theobald
Teeth of the comb both long and short, irregular 2

2. Abdomen with six pairs of dorsal float-hairs 3
Abdomen with three pairs of float-hairs . . . . . { *farjardi* Lutz / *bonneæ* Root / *bathanus* Dyar

3. Elements of the dorsal float-hairs smooth-margined on abdominal segments 2 to 7, with sometimes a small tuft on segment 1 4
Elements of dorsal float-hairs notched toward tip; tufts never present on abdominal segment 1 9

4. Inner hairs of anterior submedian thoracic group with flattened leaf-like branches resembling a palmate hair 5
These hairs with slender branches, not flattened 7

5. Inner hairs of anterior thoracic groups of the two sides far apart, each with about eleven leaflets . . . . . *tarsimaculatus* Goeldi
These hairs close together, the tips of their leaflets often overlapping, each with about sixteen leaflets 6

6. Inner anterior clypeal hairs close together . . . . . *evansi* Brèthes
These hairs far apart . . . . . *albitarsis* Lynch Arribálzaga

7. Dorsal hairs of posterior flap of spiracular mechanism very long and strong, *darlingi* Root
These hairs microscopic 8

8. Inner anterior clypeal hairs very close together . { *parvus* Chagas / *argyritarsis* Robineau-Desvoidy
   These hairs far apart . . . . . { *albimanus* Wiedemann / *pictipennis* Phillipi
9. Abdomen with plumose lateral hairs on first six segments; head with small simple hairs only . . . . . *barberi* Coquillett
   Abdomen with plumose lateral hairs on first three segments only; head with plumose hairs 10
10. Abdomen with six pairs of dorsal float-hairs 11
    Abdomen with five pairs of dorsal float-hairs 12
11. Dorsal float-hairs all equal in size . . . . . *eiseni* Coquillett
    The anterior pair of float-hairs small . . . . . { *quadrimaculatus* Say / *walkeri* Theobald / *atropos* Dyar and Knab
12. Anterior pair of dorsal float-hairs smaller than the others 13
    Dorsal float-hairs all equal in size 14
13. Post-clypeal hair double; antennal branched hair small . . . . . *punctipennis* Say
    Post-clypeal hair single; antennal hair long . . . . . *crucians* Wiedemann
14. Elements of dorsal float-hairs with long slender apical portion, *pseudopunctipennis* Theobald
    Dorsal float-hairs without prolonged apex . . . . . { *maculipennis* Meigen / *grabhamii* Theobald

The larvæ of the following are unknown or insufficiently described: *Triannulatus, rondoni, cuyabensis, bachmanni, lutzii, nigritarsis, guarani, fluminensis, gilesi, nimbus, annulipalpis, peryassui, mattogrossensis, celidopus, alagoanii, maculipes, intermedius, pseudomaculipes,* and *boliviensis.*

Subgenus CHAGASIA Lutz

ANOPHELES (CHAGASIA) FARJARDI (Lutz)

PYRETOPHORUS FARJARDI Lutz, in Bourroul, Mosq. do Bras., 16, 1904.
Pyretophorus farjardoi Blanchard, Les Moust., 623, 1905.
CHAGASIA NIVÆ Cruz, Braz. Med., xx, 199, 1906.
Chagasia farjardi Theobald, Mon. Culic., iv, 123, 1907.
Chagasia farjardoi Peryassú, Os Culic. do Braz., 122, 1908.
Chagasia farjardoi Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 42, 1911.
Anopheles (Chagasia) farjardi Dyar, Ins. Ins. Mens., vi, 149, 1918.
Chagasia farjardoi var. MACULATA Peryassú, A Folha Med., ii, 18, 141, 1921.
Chagasia farjardoi and *maculata* Peryassú, A Folha Medica, iv, 63, 1923.
Chagasia (Chagasia) farjardi Christophers, Ind. Med. Res. Mem., iii, 15, 1924.
Chagasia farjardoi Root, in Boyd, Am. Journ. Hyg., Mon. Sec. No. 5, 52, 1926.
Chagasia farjardoi Boyd, Am. Journ. Hyg., Mon. Sec. No. 5, 46, fig. 12, 1926.
Chagasia farjardoi Edwards, Bull. Ent. Res., xvii, 123, 1926.
Chagasia farjardoi Root, Am. Journ. Hyg., vii, 470, 1927.

Female—Proboscis moderate, slightly enlarged apically, black. Palpi as long as the proboscis, black, with shaggy suberect vestiture. Antennæ with bunches of scales on the segments. Occiput with pale hairs in the center, directed forward, darker hairs on the sides, long, curved, light yellow scales and bifurcated black erect ones. Mesonotum with fusiform pale yellow scales arranged in longitudinal rows, behind mixed with white, golden, and black hairs, laterally with black scales forming groups. Abdomen blackish, hairy. Legs black, speckled with white; femora and tibiæ speckled and with white tips; tarsi evenly spotted with few spots (three to six), white

at bases of the joints; on the hind tarsi the white rings are enlarged, the second to fifth joints being white on basal half or over, black on apical portion. Wing-scales rather broadly lanceolate, rounded-tipped and somewhat inflated basally, mostly pointed-tipped outwardly, black.

Male—As in *bonneæ*, the basal lobe of the side-piece of the hypopygium with only two spines.

Larva—As in *bonneæ*, differing in a few details.

Brazil, Argentina.

Dr. F. M. Root found the larvæ in swiftly moving mountain streams among grass-stems edging the water. Mr. Shannon has specimens taken in Argentina (Misiones).

ANOPHELES (CHAGASIA) BONNEÆ Root

Chagasia farjardi Bonne (not Lutz), Tijd. v. Ent., lxvi, 112, 1923.
Chagasia farjardoi Root (not Lutz), Am. Journ. Hyg., iii, 271, 1923.
Chagasia farjardi Bonne (not Lutz), Ned, Tijd. v. Gen., lxviii, 1924.
Anopheles (Chagasia) farjardi Bonne and Bonne-Wepster (not Lutz), Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 544, 1925.
CHAGASIA BONNEÆ Root, Amer. Journ. Hyg., vii, 474, 1927.

Female—Proboscis moderate, pointed, black, with roughened scales. Palpi as long as the proboscis, black, the scales outstanding, a few white scales outwardly. Antennæ with patches of dark spatulate scales on the apices of the segments. Occiput with erect white scales, yellowish white on the vertex, many erect bifurcated black scales. Mesonotum brown, with a few longitudinal rows of elliptical white scales, irregular at the sides; in front two round bare spaces with white scales around; pleuræ and coxæ blackish brown, with a few patches of white scales. Abdomen brownish, variegated, hairy. Legs black with white markings; femora and tibiæ with many white spots; on the hind tarsi the white rings are enlarged; basal three-fifths of second joint, basal three-fourths of third white; fifth joint wholly white on one side, black on the other, except the very base. Wing-scales of two types, one narrowly lanceolate and white, the other broadly ovate, truncate, black.

Male—Coloration of the female. Palpi with white scales apically at the tips of the joints. Antennæ plumose, without scales. Hypopygium (Plate CXII, Fig. 389): Side-piece slightly conical, with a large round median lobe bearing about six stout curved spines and several small ones. Clasper long, slender, more than twice as long as side-piece, a little enlarged at base and tip, with very short inserted terminal spine. Ædœagus with conical base, tip smooth. A small rounded membranous area at base of side-piece.

Larva (Plate CXII, Fig. 389)—Head elongate, rounded, the part between antennæ conically produced; antennæ finely spinulose within. Abdomen with three pairs of float-hairs on third to fifth segments, the single floats broadly expanded, truncate, with a long filament from the middle. Comb of the eighth segment with all the teeth equal, moderate, except the marginal ones, which are much larger. Anal segment about as long as wide; dorsal plate moderate; ventral brush well developed, the hairs not feathered; dorsal tuft a longer and a shorter brush on each side.

Surinam.

The adult is said to rest in the position of *Mansonia*, and not in that supposed to be characteristic of other *Anopheles*. The larvæ occur in

the edges of streams, presumably. The adults have been found to bite by day. Nothing is on record of the disease-bearing possibilities of this species.

ANOPHELES (CHAGASIA) BATHANUS Dyar

ANOPHELES (CHAGASIA) BATHANUS Dyar, new species (here published).

Female—Proboscis moderate, black, the labellæ faintly yellowish. Palpi as long as the proboscis, black, with shaggy suberect vestiture. Antennæ with rows of scales on the segments. Occiput dark, with pale hairs centrally, dark ones on the sides, erect shortly forked black ones and some white thickened ones laterally. Mesonotum dark, with small scattered ovate white scales; dense large spatulate black ones on the pleuræ before the wing-bases. Abdomen blackish, hairy. Legs black, speckled with white; femora and tibiæ with white tips; tibiæ densely spotted with many small spots; fore and mid tarsi rather coarsely but numerously spotted; first hind tarsal with five narrow white rings, the subapical one the broadest; second to fifth white, with the apical fourth black and a small black ring close to the base of each, indistinct on the fifth joint. Wing-scales rather broadly ovate, mostly black but with a proportion of white ones intermixed.

Male—Coloration of the female. Palpi with white scales apically at the tips of the joints. Antennæ plumose, without scales. Hypopygium: Side-piece stoutly conical, about one and a half times as long as wide, with a low central lobe bearing short spines, the central eight of which are stout, the marginal ones slighter and grading off into the general vestiture of fine short hairs; hairs on the outer aspect of side-piece long. Clasper long, flatly expanded on apical third, with very short inserted terminal spine. Ædœagus with conical base, the tip spherically enlarged and with large lumen. Ninth tergites elliptical, with coarse hairs.

Larva—Essentially as in *bonneæ*. The pupal paddles differ distinctly. In *bonneæ* they end in a distinct pointed spine, darkly colored and inserted; in *bathanus* the appendage is long, blunt-ended, very thin and transparent and jointed rather than inserted.

Costa Rica, Panama.

One female, Type No. 40859, U. S. National Museum, bred from a larva taken near Gatun, Canal Zone, December 27, 1927 (C. H. Bath). Mr. Bath writes as follows in a letter to Dr. D. P. Curry: "I collected larvæ in pot-holes in soft coral rock in the bed of the drained Agua Clara Reservoir. The specimen inclosed was taken with four other larvæ of *A. eiseni* and one of *apicimacula*. The holes showed signs of having been washed out by rains a day or two before my inspection, and the larvæ appeared to be unusually few and scattered. The stream-bed is about ten feet wide and is shaded part of the day by tall trees. Water clear, no algæ and no floating débris."

In addition, Dr. D. P. Curry sent three females and two males from the same locality, and finally Mr. W. H. W. Komp sent me a male and five females collected in Almirante, Republic of Panama. Dr. Curry says that the larval habits are the same as described by Dr. F. M. Root for *farjardi* in Brazil, namely, that they inhabit the edges of swiftly running streams. Dr. M. A. Barber discovered the species independently a little later. He writes: "I found it in both Panama and Costa Rica, in immense numbers in Panama. That in February (1928) on our first visit, and Dr. Curry found it last December just ahead of us."

Subgenus NYSSORHYNCHUS Blanchard

ANOPHELES (NYSSORHYNCHUS) ALBIMANUS Wiedemann

ANOPHELES ALBIMANUS Wiedemann, Dipt. Exot., 10, 1821.
ANOPHELES CUBENSIS Agramonte, El Prog. Med., x, 460, 1900.
Anopheles argyrotarsis ALBIPES Theobald, Mon. Culic., i, 125, 1901.
ANOPHELES DUBIUS Blanchard, Les Moust., 205, 1905.
Nyssorhynchus albimanus, cubensis, Cellia albipes, and *albimana* Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 67, 68, 73, and 74, 1911.
Anopheles albimanus Zetek, Ann. Ent. Soc. Am., viii, 221, 1915.
Anopheles albimanus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 979, 1917.
Anopheles (Cellia) albimanus Dyar, Ins. Ins. Mens., vi, 151, 1918.
Cellia albimana Lutz, Mem. Inst. O. Cruz, x, 85, 1919.
Anopheles albimanus Evans, Ann. Trop. Med. and Par., xv, 447, 1921.
Anopheles (Cellia) albimanus Chanal, Role Path. des Moust., 11, 1921.
Anopheles (Nyssorhynchus) albimanus Dyar, Proc. U. S. Nat. Mus., lxii, 103, 1922.
Anopheles (Nyssorhynchus) albimanus Root, Am. Journ. Hyg., iii, 276, 1923.
Anopheles (Nyssorhynchus) albimanus Christophers, Ind. Med. Res. Mem., iii, 38, 1924.
Anopheles (Nyssorhynchus) albimanus Root, Am. Journ. Hyg., iv, pl. vii, fig. 15, 1924.
Anopheles (Anopheles) albimanus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 516, 1925.
Anopheles (Nyssorhynchus) albimanus Dyar, Ins. Ins. Mens., xiii, 194, 1925.
Anopheles (Nyssorhynchus) albimanus Root, in Boyd, Am. Journ. Hyg., Mon. Sec. No. 5, 51, 1926.

Female—Proboscis moderate, straight, black, the labellæ whitish. Palpi as long as the proboscis, roughly black-scaled, the tips of the joints white, last joint wholly so. Occiput black with erect broad roughly truncate-tipped white scales, black on the sides. Mesonotum dark, with rather sparsely distributed ovate white scales; pleuræ and coxæ dark brown. Abdomen black, hairy, with patches of ovate pale yellow scales posteriorly on the segments, a few of them laterally, blackish, forming little raised tufts more or less prominent. Legs brown-black; fore tarsi with narrow yellowish rings at the apices of first, second and third joints; femora with little apical yellow specks; mid femora like fore, tibiæ speckled on one side, first tarsal joint with a little yellowish spot at apex; hind femora apically narrowly white; apical half of second, all of third and fourth joints white; a little whitish at end of tibia and first tarsal. Wing-scales white and black, white generally predominating; along the costa two black blotches occupying two veins at middle and outer third of costa; smaller spots basally on costa and a little apical one; other veins with small sparse spots at tips of all veins, and others sparsely on the stems.

Male—Coloration of the female. Palpi with the last two joints club-shaped and largely white; a white ring at middle of long joint. Hypopygium (Plate CXII, Fig. 390): Side-piece ovate, conical outwardly; a stout spine near base arising from an elongated peduncle; two stout spines near middle of side-piece, arising from a common base; a small, slender spine just beyond this. A small lobe at base of side-piece bearing three flattened filaments. Clasper long, slender, as long as the side-piece, attenuated subapically, with a moderately long, sharp, terminal spine. A high conical basal membrane. Mesosome moderate, not greatly prolonged, without leaflets; fused dorsal membranous lobes bare, as long or longer than the mesosome, with a median indentation; two bladder-like expansions dorsally before tip.

Larva (Plate CXII, Fig. 390)—Head elongate, rounded, bulging on the sides, front conically produced; four dorsal head-hairs in a line between the antennæ, single, feathered; antennæ rather large, spined, a tuft of feathered hairs from basal fourth. Abdomen with subdorsal float-hairs on second to seventh segments; a small pair on first segment. Lateral plate of the eighth segment bearing a comb of spines posteriorly, irregularly alternating long and short of several lengths. Anal segment as long as wide, with a small dorsal plate; dorsal tuft a longer and a shorter brush on each side; ventral brush well developed, of long branched tufts. Anal gills moderate, about as long as the segment, blunt.

Florida (Key West), Greater Antilles, Texas (Rio Grande Valley), Mexico, Central America, Panama, Ecuador, Venezuela.

The larvæ occur in ground-pools. This species is considered a dangerous carrier of malaria, although its possible confusion with the similar *tarsimaculatus* may render the conclusion referred to less exact.

ANOPHELES (NYSSORHYNCHUS) BACHMANNI Petrocchi

ANOPHELES BACHMANNI Petrocchi, Rev. del Inst. Bact. del Dep. Nac. de Hyg., iv, 69, 1925.

Anopheles (Nyssorhynchus) bachmanni Root, Am. Journ. Hyg., vi, 714, 1926.

ANOPHELES (NYSSORHYNCHUS) DAVISI Paterson and Shannon, Terc. Reun. Soc. Arg. de Pat. Reg. del Norte (Tucumán), Mosq. de Embarcación, 5, 1927.

ANOPHELES (NYSSOHYNCHUS) PEREZI Shannon and Del Ponte, new species (here published).

Female—Proboscis moderate, straight, black, the labellæ whitish. Palpi as long as the proboscis, roughly black-scaled, the tips of the joints white, last joint wholly white, penultimate joint usually mainly white. Occiput black, with erect, broad, truncate-tipped white scales, black on the sides. Mesonotum dark, with rather sparsely distributed ovate white scales; pleuræ and coxæ dark brown. Abdomen black, hairy, with patches of ovate pale yellow scales posteriorly on the segments, a few of them laterally, blackish, forming little raised tufts more or less prominent. Legs brown-black; fore tarsi with broad yellowish rings at apices of first, second and third joints; femora with little apical yellow specks; mid femora like fore; tibiæ speckled on one side, first tarsal joint with a little yellowish spot at apex; hind femora narrowly apically white; a little whitish at end of tibia and first tarsal, apical half of second, third, and fourth joints white. Wing-scales white and black, the white generally extensive save along costa, where the two costal patches are large and almost touching, and the basal markings conjoined; other wing-spots similar to those of *albimanus*, but expanded.

Male—Coloration of the female. Palpi with the last two joints club-shaped, white-shaded; a white ring at middle of long joint. Hypopygium (Plate CXII, Fig. 391): Side-piece ovate, conical outwardly; a stout spine near base arising from an elongated peduncle; two stout spines near middle of side-piece, arising from a common base; a small slender spine just beyond this. A small lobe at base of side-piece bearing three flattened filaments. Clasper long, slender, as long as the side-piece, attenuated subapically, with a moderately long sharp terminal spine. A high conical basal membrane. Mesosome moderate, not greatly prolonged, without leaflets; fused dorsal membranous lobes bare, low and mound-like, shorter than the mesosome.

Larva—Unknown.

Argentina, Paraguay, Venezuela (F. M. Root, 1927).

The larvæ should be found in ground-pools. The species is doubtless a dangerous malaria carrier. Dr. Root found the larvæ most abundant in Venezuela in a small pond full of *Pistia*.

Mr. R. C. Shannon tells me that *davisi* differs but slightly in hypogyeal structure from *bachmanni*. *Bachmanni* appears to be confined to the Paraguay-Parana Valley; *davisi* comes from the other side of the Gran Chaco (Embarcación, Salta). The larvæ of *davisi* differ in their general narrower appearance and certain small structural characters, and there are slight differences in wing and leg markings.

Messrs. Shannon and Del Ponte state in regard to *perezi* Shannon and Del Ponte, new species (here published): "It differs from *bachmanni* and *davisi* in having the upper branch of the fifth vein almost entirely dark-scaled, and in having only the first, second and third tarsal joints white apically."

Finca Santa Barbara, Tucumán, Argentina, April 8, 1927 (R. C. Shannon); two female types deposited in the U. S. National Museum, through the courtesy of the Instituto Bacteriologico of Buenos Aires. The male has not been found.

ANOPHELES (NYSSORHYNCHUS) RONDONI (Neiva and Pinto)

Cellia rondoni Neiva and Pinto, Braz. Med., xxxvi, 322, 1922.

Anopheles (Nyssorhynchus) trasimaculatus var. *rondoni* Christophers, Ind. Med. Res. Mem., iii, 40, 1924.

Anopheles (Anopheles) rondoni Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No 13, 522, 1925.

Female—Proboscis moderate, straight, black. Palpi as long as the proboscis, black, the joints with apical white rings, the last joint white. Occiput black with white scales. Mesonotum gray with yellowish scales; a median dark line, two lateral spots and one posterior. Abdomen black, hairy, with large patches of yellowish scales, which form on the sides little black tufts. Legs black, the femora with small basal and subapical spots; tibiæ with apical white spot; fore tarsi with white spots at apices of all the joints; mid tarsi with one white ring less; hind femur with pale mottlings on one side, tibia with white tip; first tarsal with the apical fourth white, third with a black band on basal third, fourth all white with a little black on one side at base, fifth with a large band at basal half. Wings with black and yellow scales, the costal pale spots small; other dark spots as usual, but extended.

Male—Coloration of the female. Hypopygium as in *bachmanni*, as well as the balsam mount before me permits to be seen.

Larva—Unknown.

Brazil, Argentina.

Mr. R. C. Shannon has presented several specimens of this species to the U. S. National Museum, taken by himself at Calilegula and Ledesma, Jujuy, Argentina, through the kind permission of the Instituto Bacteriologico of Buenos Aires.

ANOPHELES (NYSSORHYNCHUS) CUYABENSIS (Neiva and Pinto)

CELLIA CUYABENSIS Neiva and Pinto, Braz. Med., xxxvii, 235, 1923.
Anopheles (Nyssorhynchus) tarsimaculatus var. *cuyabensis* Christophers, Ind. Med. Res Mem., iii, 40, 1924.
Anopheles (Anopheles) cuyabensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 521, 1925.

Female—Proboscis moderate, straight, black. Palpi as long as the proboscis, black, the joints with apical white rings, the last joint white. Occiput black with white scales. Mesonotum gray, with yellowish scales; a median dark line, two lateral spots and one posterior. Abdomen black, hairy, with large patches of yellowish scales, which form on the sides little black tufts. Legs black, the femora with small basal and subapical spots; tibiæ with apical white spot; fore tarsi with three spots at apices of all the joints; mid tarsi with one white ring less; hind femur with pale mottlings on one side, tibia with white tip; first tarsal with the apical fourth white, third all white, fourth with a small black band at the base, fifth with a large one. Wings with black and yellow scales, the costal pale spots small; other dark spots as usual, but extended.

Male—Unknown.

Larva—Unknown.

Brazil.

This form is known to me only by description.

ANOPHELES (NYSSORHYNCHUS) TRIANNULATUS (Neiva and Pinto)

CELLIA TRIANNULATA Neiva and Pinto, Brazil Med., xxxvi, 356, 1922.
Anopheles (Nyssorhynchus) tarsimaculatus var. *triannulatus* Christophers, Ind. Med. Res. Mem., iii, 40, 1924.
Anopheles (Anopheles) triannulata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 520, 1925.

Female—Proboscis moderate, straight, black. Palpi as long as the proboscis, black, the joints with apical white rings, the last joint white. Occiput black, with white scales. Mesonotum gray, with yellowish scales; a median dark line, two lateral spots and one posterior. Abdomen black, hairy, with large patches of yellowish scales, which form on the sides little black tufts. Legs black, the femora with small basal and subapical spots; tibiæ with apical white spot; fore tarsi with white spots at apices of all the joints; mid tarsi with one white ring less; hind femur with pale mottlings on one side, tibia with white tip; first tarsal with the apical fifth white, third with a small black band at base, fourth with a small black band at the base, fifth with a large one. Wings with black and yellow scales, the costal pale spots small; other dark spots as usual, but extended.

Male—Unknown.

Larva—Unknown.

Brazil.

This form is known to me only by description.

ANOPHELES (NYSSORHYNCHUS) EVANSI (Brèthes)

CELLIA EVANSI Brèthes, La Prensa Medica, xiii, 106, 1926.
Cellia evansi Brèthes, Physis, viii, 311, 1926.
ANOPHELES (NYSSORHYNCHUS) STRODEI Root, Am. Journ. Hyg., vi, 711, 1926.

Female—Proboscis slender, straight, black, the labellæ pale. Palpi as long as the proboscis, with shaggy black vestiture, white at the tips of the first two joints, the last two white except at their bases. Occiput black, with erect ovate white scales, black on the sides. Mesonotum gray-brown, with sparse ovate white scales; a black spot on each side of the middle in the integument, and one posteriorly mesially; pleuræ and coxæ brown, with pale streaks. Abdomen black, hairy, with ovate yellowish scales distributed mostly posteriorly and medianly on the segments; a few laterally posteriorly on the segments are black and erect, forming small tufts. Legs brown-black; fore tarsi with yellowish rings at apices of first, second, and third joints, femora with little yellowish specks apically; mid femora like the front, first and second tarsals with yellowish apical marks; hind tibia whitish at tip, more than half of second, third, and fourth joints white. Wing-scales pale yellow and black, the pale color extensive save along the costa, where a small subbasal, two large central, and a small subapical spot involve costa and first vein; small spots at tips of all veins and generally distributed over the wing.

Male—Coloration of the female. Palpi with the last two joints club-shaped, largely white-shaded; a white ring at middle of long joint. Hypopygium (Plate CXIII, Fig. 392): Side-piece ovate, conical outwardly; a stout spine near base arising from an elongated peduncle; two stout spines near middle of side-piece, arising from a common base; a small, slender spine just beyond this. A small lobe at base of side-piece bearing three flattened filaments. Clasper long, slender, as long as side-piece, attenuated subapically, with a short, sharp terminal spine. A high conical basal membrane. Tip of membranous lobes with striate or folded lateral expansions which do not bear hairs; lobe-like dorsal hairy expansions large.

Larva (Plate CXIII, Fig. 392)—Similar to that of *tarsimaculatus*, but the anterior clypeal hairs are close together, as in *argyritarsis;* less strongly branched than in *tarsimaculatus*; the inner hairs of the anterior submedian thoracic groups are as in *albitarsis,* having more leaflets (16 to 19) than in *tarsimaculatus* (10 to 13), and are close together instead of far apart; the dorsal plate of the eighth segment is only about one and a half times as large as that of seventh segment; the lateral pecten of the eighth segment has four or five long teeth and ten or eleven short ones; there are from six to nine uninterrupted short teeth; usually there are two long teeth together at dorsal end, one or two at the ventral end and one in the middle, but nearer the dorsal side; spurs at the bases of the clumps of long ventral thoracic hairs very short, only a little larger than those of *argyritarsis.*

Interior Brazil and Argentina, Paraguay, Venezuela (F. M. Root, 1927), Panama.

The larvæ occur in ground-pools, marshy expansions, and side-pools of streams, marshes, and seepage areas with much vegetation.

Mr. R. C. Shannon tells me that he and Dr. N. C. Davis are of the opinion that *evansi* Brèthes is *tarsimaculatus.* Dr. Davis gave the material to Dr. Brèthes, from which he described *evansi,* and feels sure that it was *tarsimaculatus.* The true *strodei* from Brazil may or may not be distinct; but they think it does not occur in western Argentina.

ANOPHELES (NYSSORHYNCHUS) TARSIMACULATUS Goeldi

ANOPHELES TARSIMACULATA Goeldi, Os Mosq. no Para, 133, 1906. 5.
ANOPHELES GORGASI Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 198, 1907.
Anopheles tarsimaculata Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 975, 1917.
Anopheles (Cellia) tarsimaculata Dyar, Ins. Ins. Mens., vi, 151, 1918.
Anopheles albimanus var. *tarsimaculata* Evans, Ann. Trop. Med. and Par., xv, 450, 1921.
CELLIA OSWALDOI Peryassú, A Folha Medica, iii, 179, 1922.
Cellia tarsimaculata Pinto, Anoph. Angra dos Reis, 14, 1923.
Anopheles (Nyssorhynchus) tarsimaculata Root, Am. Jn. Hyg., iii, 276, 1923.
Anopheles tarsimaculata Bonne, Ins. Ins. Mens., xi, 127, 1923.
Anopheles (Nyssorhynchus) tarsimaculata Root, Am. Jn. Hyg., iii, 276, 1923.
Anopheles tarsimaculata Bonne, Ned. Tijd. v, Gen. lxviii, 1924.
Anopheles (Nyssorhynchus) tarsimaculata Root, Am. Jn. Hyg., iv, 463, Pl. vi, fig. 16, 1924.
Anopheles (Nyssorhynchus) tarsimaculata and var. *oswaldoi* Christophers, Ind. Med. Res. Mens., iii, 39 and 40, 1924.
Anopheles tarsimaculata Dyar, Ins. Ins. Mens., xiii, 24, 1925.
Anopheles tarsimaculata Dyar, Ins. Ins. Mens., xiii, 31, 1925.
Anopheles (Nyssorhynchus) tarsimaculatus Dyar, Ins. Ins. Mens., xiii, 195, 1925.
Anopheles tarsimaculata Dyar, Ins. Ins. Mens., xiii, 216, 1925.
Anopheles (Anopheles) tarsimaculata Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 511, 1925.
Anopheles (Cellia) tarsimaculatus Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 34, fig. 4, 1926.
Anopheles (Nyssorhynchus) tarsimaculatus Root, Am. Journ. Hyg., vi, 709, 1926.

Female—Proboscis slender, straight, black, the labellæ pale. Palpi as long as the proboscis, with shaggy black vestiture, white at the tips of the first two joints, the last two white except at their bases. Occiput black, with erect ovate white scales, black on the sides. Mesonotum gray-brown, with sparse ovate white scales; a black spot on each side of the middle in the integument, and one posteriorly mesially; pleuræ and coxæ brown, with pale streaks. Abdomen black, hairy, with ovate yellowish scales distributed mostly posteriorly and medianly on the segments; a few laterally posteriorly on the segments are black and erect, forming small tufts. Legs brown-black; fore tarsi with yellowish rings at apices of first, second, and third joints, femora with little yellowish specks apically; mid femora like the front, first and second tarsals with yellowish apical marks; hind tibia whitish at tip, more than half of second, third, and fourth joints white. Wing-scales pale yellow and black, the pale color extensive save along the costa, where a small subbasal, two large central, and a small subapical spot involve costa and first vein; small spots at tips of all veins and generally distributed over the wing.

Male—Coloration of the female. Palpi with the last two joints club-shaped, largely white-shaded; a white ring at middle of long joint. Hypopygium (Plate CXIII, Fig. 393): Side-piece ovate, conical outwardly; a stout spine near base arising from an elongated peduncle; two stout spines near middle of side-piece, arising from a common base; a small, slender spine just beyond this. A small lobe at base of side-piece bearing three flattened filaments. Clasper long, slender, as long as side-piece, attenuated subapically, with a short, sharp terminal spine. A high conical basal membrane. Tips of membranous lobes rounded or slightly truncate, with short hairs; lobe-like dorsal hairy expansions not large.

Larva (Plate CXIII, Fig. 393)—Resembles that of *albitarsis* in general. As in that species, float-hairs are present on the thorax and the first seven abdominal segments, those of the thorax and seventh abdominal being smaller and weaker. The float-hairs of the first abdominal segment are usually larger than the thoracic one and may be pigmented. The anterior clypeal hairs tend to be more heavily branched than in *albitarsis*. The inner hairs of the anterior submedian thoracic group have fewer leaflets (ten to thirteen), and the hairs of the two sides are widely separated. The dorsal plate of the eighth abdominal segment is nearly twice as large as that of the seventh; lateral pecten of four to five long teeth and nine to fifteen shorter ones; uninterrupted short teeth from four to eleven, but very variable and not diagnostic. The spurs at the bases of the clumps of long hairs on the ventral side of thorax are shorter than in *albitarsis*, but never as short as in *argyritarsis*.

Nicaragua, Panama, Colombia, Venezuela, the Guianas, Lesser Antilles, Trinidad, Peru (Iquitos), Brazil, Paraguay.

The larvæ occur in ground-pools, in thick vegetation or flotage of quiet pools, ponds, marshes, and edges of rivers, but also in shallow wells, pits, and road-pools without any vegetation. This species is undoubtedly a carrier of malaria.

ANOPHELES (NYSSORHYNCHUS) NIGRITARSIS (Chagas)

MYZORHYNCHELLA NIGRITARSIS Chagas, Nov. Esp. de Cul. Braz., 12, 1907.
Myzorhynchella nigritarsis Peryassú, Os Culic. do Braz., 97, 1908.
Myzorhynchella nigritarsis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 62, 1911.
Anopheles (Myzorhynchella) nigritarsis Dyar, Ins. Ins. Mens., vi, 149, 1918.
Anopheles (Nyssorhynchus) nigritarsis Christophers, Ind. Med. Res. Mem., iii, 41, 1924.
Anopheles (Anopheles) nigritarsis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 531, 1925.

Female—Proboscis long, black. Palpi as long as proboscis, black, with white rings at the tips of the joints especially, the last joint white. Occiput dark, with white spatulate scales. Mesonotum brownish, with a median dark band and posterior half-lines in the integument, with curved yellow scales. Abdomen dark brown, hairy; last segment with spatulate scales, brown basally, yellow apically. Legs: fore tibiæ with white spot subapically; tarsi with white apical rings on first to third joints; mid tibiæ with a line of pale scales; first tarsal joint with a white spot at tip; hind tibia with white ring at tip; tarsi with the first joint white at tip, second white on the apical third; last three joints white, the third and fourth joints with a black ring at the base. Wing undescribed.

Male—Coloration of the female. Hypopygium undescribed.

Larva—Unknown.

Brazil.

This species is known to me only by description. If there is no error therein, it should be easily recognized by having the hind tarsi with the fifth joint white, but black rings at bases of the third and fourth. Otherwise similar to *rondoni, cuyabensis,* and *triannulatus*.

ANOPHELES (NYSSORHYNCHUS) PICTIPENNIS (Philippi)

CULEX PICTIPENNIS Philippi, Verh. Zool.-Bot. Ges., xv, 596, 1865.
ANOPHELES BIGOTII Theobald, Mon. Culic., i, 135, 1901.
Cellia bigotii Theobald, Mon. Culic., v, 69, 1910.
Anopheles pictipennis Knab, Am. Jn. Trop. Dis. and Prev. Med., i, 37, 1913.

Cellia argyrotarsis Neiva and Barbará (not Lynch), La Prensa Med. Arg., Dec. 10, 1915.
Anopheles (Cellia) pictipennis Dyar, Ins. Ins. Mens., vi, 150, 1918.
Anopheles (Nyssorhynchus) argyritarsis Christophers (not Robineau-Desvoidy), Ind. Med. Res. Mem., iii, 37, 1924.
Anopheles (Nyssorhynchus) argyritarsis Dyar (not Robineau-Desvoidy), Ins. Ins. Mens., xiii, 193, 1925.

Female—Proboscis rather thin, brown. Palpi brown, with the tips of all the joints white, making four white bands. Occiput brown, with white curved scales. Mesonotum dark brown, with four longitudinal lines of rather flat white scales at the side of the mesonotum, these lines confused posteriorly; pleuræ brown with white scales. Abdomen steely black, clothed rather densely with flat yellow scales above and white ones on the venter. Legs rather pale brown; fore tarsi with broad white apical bands on first three joints, fifth joint white; hind legs, femora with an imperfect apical ring, apex of tibia dark, first tarsal with a broad white apical band, apex of second joint narrowly white, last three tarsals white. Wings with three clear white spots on a dark costa, involving two veins, and a fourth, subbasal, on the subcosta only; other veins dark, with white spots as follows: A long central patch on each fork of second vein; third vein except base and tip; both forks of fourth vein except their tips; upper fork of fifth at base, cross-vein and middle outwardly; lower fork except at tip; sixth vein broadly in the middle.

Male—Unknown.

Larva—Unknown.

Chile.

The description is compiled from Theobald's *bigotii*, the species being unknown to me in nature. Christophers points out that this description does not differ from that of *argyritarsis* or *albitarsis*, and he consequently makes it synonymous; but Root's recent separation of these forms requires that further investigation of this Chilean form should be had before its status is understood. I am therefore listing it separately. Edwards and Shannon found the larvæ in drying pools in the rocky bed of a stream among green algæ and watercress at Llai-Llai, Aconcagua Province, Chile. Mr. F. W. Edwards writes that the adult runs to *albitarsis* by Root's key, but differs in having no black spots in the mesosomal integument, but the sides darkened. Mesonotal scales larger, tending to linear arrangement. No trace of lateral abdominal tufts. White subapical spot of femora more conspicuous, sometimes a ring. A broad white band at tip of first hind tarsal. The larva runs to *albimanus* by Root's key, but has no palmate hairs on metathorax or first abdominal segment.

ANOPHELES (NYSSORHYNCHUS) PARVUS (Chagas)

Myzorhynchella parva Chagas, Nov. Esp. de Cul. Braz., 4, 1907.
Myzorhynchella parva Peryassú, Os Culic. do Braz., 92, 1908.
Myzorhynchella parva Theobald, Mon. Culic., v, 46, 1910.
Myzorhynchella parva Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 62, 1911.
Anopheles (Myzorhynchella) parva Dyar, Ins. Ins. Mens., vi, 149, 1918.
Anopheles (Nyssorhynchus) parva Christophers, Ind. Med. Res. Mem., iii, 41, 1924.
Anopheles (Anopheles) parva Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 532, 1925.

Anopheles parva Root, in Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 52, 1926.
Anopheles (Myzorhychella) parvus Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 45, fig. 11, 1926.
Anopheles (Nyssorhynchus) parvus Root, Am. Journ Hyg., vii, 600, 1927.

Female—Proboscis long, black. Palpi as long as proboscis, black, the joints, especially the last, white-tipped. Occiput dark, with dark lanceolate scales. Mesonotum brownish, with two median and two posterior halflines; sparse curved scales, white in front, golden yellow on the sides. Abdomen dark brown, hairy, irregularly mottled with paler; last segment with many falciform scales, brown basally, white apically, the white forming a tuft at tip. Legs, fore and mid femora with white subapical spots; fore tarsi with the first three joints white-ringed at tip; mid tarsi with the first joint white at tip; hind tibiæ white at tip; first tarsal white at tip, second white at apical third, last three tarsals white. Wings black, spotted with white; five white spots on the costal border; spots on the fringe at ends of fourth, fifth, and sixth veins; irregular spots elsewhere.

Male—Coloration of the female. Hypopygium similar to that of *darlingi* and *argyritarsis*, but the tip of the mesosome forms a pointed hook.

Larva—Similar to that of *argyritarsis*, the small abdominal hairs simpler, less branched.

Brazil.

Dr. Boyd gives an enlarged view of the female. Drs. Root, Boyd, and Davis collected this species at Agua Limpa, Minas Geraes, Brazil.

ANOPHELES (NYSSORHYNCHUS) LUTZII Cruz

Anopheles lutzii Cruz, Braz. Med., xv, 423, 1901.
Myzorhynchella nigra Theobald, Mon. Culic., iv, 78, 1907.
Anopheles lutzii Neiva, Mem. Inst. O. Cruz, i, 75, 1909.
Myzorhynchella lutzii Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 60, 1911.
Anopheles lutzii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 971, 1917.
Anopheles (Myzorhynchella) lutzi Dyar, Ins. Ins. Mens., vi, 148, 1918.
Anopheles (Anopheles) lutzi Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 531, 1925.
Anopheles (Myzorhynchella) lutzi Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 44, fig. 10, 1926.
Anopheles lutzi Root, in Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 52, 1926.

Female—Proboscis rather long, black. Palpi black, with white tips to all the joints, especially the last. Occiput dark, with white spatulate scales. Mesonotum grayish, with two dark lines in front, two bands behind and a median spot. Abdomen black, hairy, the last segment with falciform scales, brown in front, yellow behind, the latter forming a small tuft. Legs black, femora and tibiæ narrowly whitish at tips; fore tarsi with the first three joints white at tips, mid tarsi similarly marked; hind tarsi with the first joint white at tip, apical half of second and all of third to fifth white. Wings with the black scales predominating, the pale ones reduced, yellow, three costal spots, the outer two involving two veins; first vein with three spots below the basal one of costa; other pale spots reduced, as in *parvus*, but contracted and indistinct.

Male—Unknown.

Larva—Unknown.

Brazil.

This species is not before me. Dr. Boyd gives a good figure.

ANOPHELES (NYSSORHYNCHUS) ALBITARSIS Lynch Arribálzaga

ANOPHELES ALBITARSIS Lynch Arribálzaga, El Nat. Arg., i, 151, 1878.
CELLIA BRAZILIENSIS Chagas, Nov. Sp. de Cul. Braz., 18, 1907.
Cellia braziliensis Peryassú, Os Culic. do Braz., 118, 1908.
Cellia braziliensis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 75, 1911.
Anopheles (Cellia) braziliensis Dyar, Ins. Ins. Mens., vi, 150, 1918.
CELLIA ALLOPHA Peryassú, Arch. Mus. Nac., xxiii, 70, 1921.
Cellia braziliensis Pinto, Scien. Med., i, 143, 1923.
Cellia braziliensis Pinto, Anoph. de Angra dos Reis, 14, 1923.
Anopheles (Nyssorhynchus) braziliensis Root, Am. Journ. Hyg., iii, 277, 1923.
Anopheles (Nyssorhynchus) argyritarsis vars. *braziliensis* and *allopha* Christophers, Ind. Med. Res. Mem., iii, 38, 1924.
Anopheles (Nyssorhynchus) braziliensis Root, Am. Journ. Hyg., iv, 457, 1924.
Anopheles (Anopheles) braziliensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 516, 1925.
Anopheles (Anopheles) allopha Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 517, 1925.
Anopheles (Nyssorhynchus) argyritarsis Dyar (not Robineau-Desvoidy), Ins. Ins. Mens., xiii, 193, 1925.
Anopheles (Cellia) braziliensis Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 33, fig. 3, 1926.
Anopheles (Nyssorhynchus) albitarsis and var. *braziliensis* Root, Am. Journ. Hyg., vi, 702 and 704, 1926.

Female—Proboscis moderate, slender, black. Palpi as long as proboscis, shaggy, black, second joint white-tipped, third black or largely white centrally, fourth usually all white. Occiput black, with white ovate scales. Mesonotum gray, a black spot each side of the middle and one posteriorly, more or less developed, with sparse ovate white scales. Pleuræ blackish, with lines of white scales. Abdomen black, hairy, with triangular patches of ovate yellow scales, laterally black, and forming little projecting tufts. Legs blackish, the femora with small spots at base and before apex; femora and tibiæ whitish at tip; fore tarsi with the first three joints broadly yellowish white-banded apically; mid tarsi similar, but the bands smaller; hind tarsi with tip of first, less than half of second, third, and fourth joints, and fifth white. Wings black and white, the black predominating. Costal spots small; second black spot as long or longer than the preceding; all veins with marginal dark spots, followed by white in the fringe; small spots evenly distributed.

Male—Coloration of the female. Palpi with the last two joints enlarged, black or largely white-shaded. Hypopygium (Plate XCIV, Fig. 394): Side-piece conical, tapered outwardly; a single rather small spine at base, two large spines at basal third, arising from a common base; a single small spine beyond, near the middle; a small lobe at base bearing three flattened filaments. Clasper long, slender, attenuated outwardly, with a moderately sharp inserted terminal spine. A high conical basal membrane; mesosome stout, cylindrical, the tip bare. Fused dorsal lobes bare, low and mound-like, shorter than the mesosome.

Larva (Plate XCIV, Fig. 394)—As in the other *Nyssorhynchus* species. Inner hairs of anterior submedian thoracic group with flattened leaf-like branches resembling a float-hair, close together, the tips of their leaflets

often overlapping; about sixteen leaflets; inner anterior clypeal hairs far apart.

Paraguay, Brazil, Argentina.

The larvæ occur in large ground-pools with vegetation, but which are not too much shaded. The adult is thought to be an important carrier of malaria.

ANOPHELES (NYSSORHYNCHUS) GUARANI Shannon

ANOPHELES (NYSSORHYNCHUS) GUARANI Shannon, new species (here published).

"*Female*—Palpi long, slender, black, the scales shaggy; small white specks at the tips of the joints. Occiput and mesonotum black, with sparse, ovate white scales. Abdomen black, the integument irregularly white-spotted, with fine pale pile, no scales nor hair-like scales. Femora with black tip, containing a white spot, the basal part yellowish, with sparse black scales; tibiæ black, lined with white scales, the tip yellowish white; fore tarsi with three yellowish spots, at tips of first, second, and third joints; mid tarsi black, unmarked; hind with the first joint yellowish with black tip and small bright white apical ring; second joint fully three-fourths black, its apex and second to fifth joints bright white. Wings dark, the black scales predominating; two outer and one apical small yellow costal spots; scales in other parts of the wing slightly paler in patches, but ill defined; wing membrane distinctly infuscated."—R. C. Shannon.

Male—Unknown.

Larva—Unknown.

Brazil.

One female, taken in a house at Iguazu, Brazil, October 5, 1927 (R. C. and E. M. Shannon), a locality just across the boundary from Iguazu, Misiones, Argentina. The type has been deposited in the U. S. National Museum, through the courtesy of Mr. R. C. Shannon. Named for the Guarani, a tribe of Indians.

ANOPHELES (NYSSORHYNCHUS) ARGYRITARSIS Robineau-Desvoidy

ANOPHELES ARGYRITARSIS Robineu-Desvoidy, Mem. Soc. d'Hist. Nat., iii, 411, 1827.
Cellia argyritarsis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 70, 1911.
Anopheles argyritarsis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. aid W. I., iv, 967, 1917.
Anopheles (Cellia) argyritarsis Dyar, Ins. Ins. Mens., vi, 150, 1918.
Cellia argyritarsis Lutz, Mem. Inst. O. Cruz., x, 85, 1919.
Anopheles argyritarsis Evans, Ann. Trop. Med. and Par., xv, 447, 1921.
Anopheles (Nyssorhynchus) argyritarsis Root, Am. Journ. Hyg., iii, 277, 1923.
Anopheles (Nyssorhynchus) lutzi Root (not Cruz), Am. Journ. Hyg., iii, 277, 1923.
Anopheles argyritarsis Bonne, Ned. Tijd. v, Gen. lxviii, 1924.
Anopheles (Nyssorhynchus) argyritarsis Christophers, Ind. Med. Res. Mem., iii, 37 and 38, 1924.
Anopheles (Nyssorhynchus) argyritarsis Dyar, Ins. Ins. Mens., xiii, 193, 1925.
Anopheles (Anopheles) argyritarsis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 516 and 533, 1925.
Anopheles (Cellia) argyritarsis Boyd, Am Journ. Hyg., Mon. Sec. No. 5, 32, fig. 2, 1926.
CELLIA ROOTI Brèthes, La Prensa Medica, xiii, 106, 1926
Cellia rooti Brèthes, Physis, viii, 309, 1926.
Anopheles (Nyssorhynchus) argyritarsis Root, Am. Journ. Hyg., vi, 700, 1926.

Female—Proboscis moderate, slender, black. Palpi as long as proboscis, shaggy, black, second joint white-tipped, third black or largely white centrally, fourth usually all white. Occiput black, with white ovate scales. Mesonotum gray, a black spot each side of the middle and one posteriorly, more or less developed, with sparse, ovate white scales. Pleuræ blackish, with lines of white scales. Abdomen black, hairy, with triangular patches of ovate yellow scales, laterally black and forming little projecting tufts. Legs blackish, the femora with small spots at base and before apex; femora and tibiæ whitish at tip; fore tarsi with the first three joints broadly yellowish white-banded apically; mid tarsi similar, but the band smaller; hind tarsi with tip of first, over half of second, third, and fourth joints, and fifth white. Wings black and white, the black predominating, costal spots small; all veins with marginal dark spots, followed by white in the fringe; small spots evenly distributed.

Male—Coloration of the female. Palpi with the last two joints enlarged, black or largely white-shaded. Hypopygium (Plate CXIV, Fig. 395): Side-piece conical, tapered outwardly; a single rather small spine at base, two large spines at basal third, arising from a common base; a single small spine beyond, near the middle; a small lobe at base bearing three flattened filaments. Clasper long, slender, attenuated outwardly, with a moderately sharp inserted terminal spine. A high conical basal membrane; mesosome stout, cylindrical, less prolonged, less chitinized, the tip with a single pair of reflexed leaflets, short, curved and serrate.

Larva (Plate CXIV, Fig. 395)—As in the other *Nyssorhynchus* species. Inner hairs of anterior submedian thoracic group with slender hairs, not flattened; hairs of posterior flap of spiracular mechanism microscopic; inner anterior clypeal hairs close together.

Mexico, Central America, Panama, Venezuela, the Guianas, Paraguay, Brazil, Argentina.

The larvæ occur in ground-pools which are not too much shaded. The adult is thought to be not an important carrier of malaria.

ANOPHELES (NYSSORHYNCHUS) DARLINGI Root

ANOPHELES (NYSSORHYNCHUS) DARLINGI Root, in Boyd, Am. Jn. Hyg., Mon. Sec., No. 5, 50, 1926 (nom. nud.).

Anopheles (Nyssorhynchus) darlingi Root, Am. Journ. Hyg., vi, 706, 1926.

Female—Proboscis moderate, slender, black. Palpi as long as proboscis, shaggy, black, the tips of the joints narrowly whitish, the last joint dull white. Occiput black, with ovate white scales. Mesonotum dark gray, with anterior double lines, median lateral spots and posterior spot darker in the integument, with sparse ovate white scales; pleuræ black, with lines of white scales. Abdomen black, hairy, all the segments with apical triangular patches of pale yellow scales, the sides with little black segmental tufts. Legs black; femora a little mottled, with spots near base and before tip; tibiæ streaked on one side, with white tip; fore tarsi with white apical bands on the first three joints, the band on third joint very broad; mid tarsi the same, but with very narrow rings; hind tarsi with tip of first joint, over apical half of second, third to fifth white. Wings black and yellowish white, the costal spots large and more or less confluent; other spottings as usual.

Male—Coloration of the female. Palpi black, a white ring at middle of long joint, last two joints thickened and shaded with white. Hypopygium

(Plate CXV, Fig. 396): Side-piece conical, tapering outwardly; a single spine at base from a pedicel; two spines before middle from a common base; a small spine just beyond this and before middle of side-piece. Clasper long, slender, attenuated mesially, with a short terminal inserted spine. A small lobe at base of side-piece bearing three flattened filaments. A high conical basal membrane. Mesosome stout, with a single pair of reflexed leaflets, its tip prolonged, chitinized, the leaflets not obviously serrate.

Larva (Plate CXV, Fig. 396)—As usual in *Nyssorhynchus*. Inner hairs of anterior submedian thoracic group with slender branches, not flattened; a single hair on each posterior flap of the spiracular mechanism long and strong, erect.

Brazil, Venezuela.

The larvæ occur in ground-pools, side-bays or rivers with vegetation, and even in muddy road-pools. The adults are fond of entering houses; but no observations have been made upon its malaria-carrying powers.

Subgenus STETHOMYIA Theobald

ANOPHELES (STETHOMYIA) NIMBUS Theobald

STETHOMYIA NIMBA Theobald, Mon. Culic., iii, 62, 1903.
Stethomyia nimba Giles, Gn. or Mosq., 251, 1904.
Stethomyia nimba Blanchard, Les Moust., 186, 623, 1905.
Stethomyia nimba Peryassú, Os Culic. do Braz., 88, 1908.
Stethomyia nimba Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 51, 1911.
Anopheles (Stethomyia) nimba Dyar, Ins. Ins. Mens., vi, 146, 1918.
Anopheles (Anopheles) nimba Christophers, Ind. Med. Res. Mem., iii, 18, 1924.
Anopheles (Anopheles) nimba Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 502, 1925.
Anopheles (Anopheles) nimbus Dyar, Ins. Ins. Mens., xiii, 190, 1925.

Female—Proboscis slender, black. Palpi as long as the proboscis, very slender, black. Occiput black, with a small median anterior patch of flat white scales, narrow, black, upright, forked scales behind. Mesonotum brown, with a narrow median white line and a lateral line on each side in the integument, with black bristles; pleuræ gray-brown. Abdomen black, hairy. Legs black, the femora whitish beneath. Wing-scales entirely black.

Male—Coloration of the female. Palpi with the last two joints swollen, black. Hypopygium: Side-piece conical, moderate; a very large single spine at the basal third; a slender inner spine at outer third. Clasper long and slender, longer than the side-piece, with very small terminal spine Basal lobes with two single and one trifid small spines. Mesosome simple, short, stout, with a short erect point at each side of tip.

Larva—Unknown.

Panama, the Guianas, and Brazil.

A specimen was bred from a shaded rock-inclosed spring, which was oiled, and later produced only *eiseni*. Theobald quotes Dr. Low as considering this to be the principal vector of malaria among the natives of British Guiana; but this has never been verified and is probably erroneous. Dr. Bonne states that the stomach of the female may harbor a *Leptomonas* in large numbers. Mr. W. H. W. Komp has very kindly sent me a single male, taken by himself in Almirante, Panama, February, 1928.

Subgenus ANOPHELES Meigen

ANOPHELES (ANOPHELES) GILESI (Peryassú)

MYZORHYNCHELLA GILESI Peryassú, Os Culic. do Braz., 103, 1908.
Myzorhynchella gilesi Theobald, Mon. Culic., v, 46, 1910.
Myzorhynchella gilesi Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 65, 1911.
Anopheles (Myzorhynchella) gilesi Dyar, Ins. Ins. Mens., vi, 149, 1918.
Anopheles (Nyssorhynchus) gilesi Christophers, Ind. Med. Res. Mem., iii, 41, 1924.
Anopheles (Anopheles) gilesi Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 532, 1925.

Female—Proboscis black. Palpi black, with white rings at the ends of the joints, the last joint white. Occiput with lanceolate narrow white scales, black behind, erect and triangular. Mesonotum grayish in the center, black on the sides, with a median dark line and a distinct spot on the scutellum; scales white, narrow, long, forming a sort of tuft, anteriorly situated on the median line, which it exceeds a little. Abdomen brown, enlarged, with yellow hairs on the last segment, no scales. Legs dark, femora pale below, white-tipped, especially on hind legs; hind tibiæ white on apical fourth, the white extending onto the basal part of the first hind tarsal. Wing-scales yellow and brown; three large yellow spots on the costal border and small ones scattered over the rest of the surface; fringe dark, cut with yellow at the ends of the veins.

Male—Unknown.

Larva—Unknown.

Brazil.

Known to me only by description. The species must be allied to *eiseni*, which has an exactly similar tuft of long white scales anteriorly on the mesonotum. The different wing-spotting should separate it easily.

ANOPHELES (ANOPHELES) EISENI Coquillett

ANOPHELES EISENI Coquillett, Journ. N. Y. Ent. Soc., x, 192, 1902.
MYZOMYIA TIBIAMACULATA Neiva, Braz. Med., xx, 288, 1906.
Myzorhynchella tibiamaculata Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 64, 1911.
Anopheles eiseni Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1002, 1917.
Anopheles (Anopheles) eiseni Dyar, Ins. Ins. Mens., vi, 143, 1918.
ANOPHELES (STETHOMYIA?) NIVEOPALPIS Ludlow, Pschye, xxvi, 166, 1920.
Anopheles (Anopheles) eiseni Root, Am. Jn. Hyg., iii, 274, 1923.
Anopheles (Anopheles) eiseni and *tibiamaculatus* Christophers, Ind. Med. Res. Mem., iii, 23, 1924.
Anopheles (Anopheles) eiseni Dyar, Ins. Ins. Mens., xiii, 189, 1925.
Anopheles eiseni Boyd, Am. Jn. Hyg., Mon. Sec., No. 5, 47, fig. 13, 1926.

Female—Proboscis moderate, black. Palpi as long as the proboscis, black, the last two joints white, except the apex of the penultimate. Occiput black, with rather broad, white, curved scales in front, black and broad behind. Mesonotum gray in the middle, broadly black on the sides and a narrow median dark line, with many short pale brownish hairs; anteriorly a tuft of straight white scales exceeding the anterior margin a little; pleuræ blackish, coxæ pale. Abdomen black, hairy, without scales. Legs black, the femora whitish at tips, especially the hind pair; hind tibia with the apical fifth contrasting white, the first hind tarsal joint wholly black. Wing-scales black; a small white speck on first vein at basal third, and a larger

and a minute one at apex; black scales intensified at bases of second to fourth veins.

Male—Coloration of the female. Last two joints of palpi thickened, black or largely white. Hypopygium (Plate CXV, Fig. 397): Side-piece conical, narrowed outwardly; two large spines near base, arising separately, and a slender one at outer third. Clasper long, attenuated in the middle, with short, stout, inserted terminal spine. A high conical spiculate basal membrane. Basal membranous lobes spicular, bearing a middle spine and two marginal ones, one of the latter blunt. Mesosome very long, tubular, with a single pair of very stout, dark appendages at tip, with serrate margins.

Larva (Plate CXV, Fig. 397)—Head rounded, elongate, longer than wide, bulging at sides, front conically produced; four dorsal head-hairs, single but numerously branched, in a line between the antennæ, a smaller hair at base of antenna; two long approximate spines on front margin. Antennæ sparsely spined; a hair-tuft very near base. Abdomen with paired float-hairs on second to seventh segments. Lateral plate of eighth segment with a posterior comb of long and short spines, irregularly alternating, the longer of the short ones about half as long as the long ones, the shorter ones about one-third. Anal segment about as long as wide with a small dorsal plate; dorsal tuft a long and a short brush on each side; a single long, lateral hair below the plate; ventral brush well developed, of long branched tufts. Anal gills moderate, about as long as the segment, bluntly pointed.

Central America, Panama, Surinam, Brazil.

The larvæ live in tree-holes, rock-pools, and shaded springs. The species is never abundant, usually collected only by breeding, and is not known to be concerned in the transmission of malaria.

ANOPHELES (ANOPHELES) PSEUDOPUNCTIPENNIS Theobald

ANOPHELES PSEUDOPUNCTIPENNIS Theobald, Mon. Culic., ii, 305, 1901.
ANOPHELES FRANCISCANUS McCracken, Ent. News, xv, 12, 1904.
ANOPHELES PERUVIANUS Tamayo, Mem. Munic. Lima, xxxv, 1907.
Anopheles pseudopunctipennis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 53, 1911.
PROTERORHYNCHUS ARGENTINUS Brèthes, Bol. Ins. Ent. y Pat. Veg., i, 15, 1912.
ANOPHELES TUCUMANUS Lahille, An. Mus. Nac. B. A., xxiii, 253, 1912.
Anopheles pseudopunctipennis Knab, Rept. Exp. So. Am., Harv. Sch. Trop. Med., 212, 1915.
Anopheles pseudopunctipennis Dyar, Ins. Ins. Mens., iv, 50, 1916
Anopheles pseudopunctipennis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1014, 1917.
Anopheles (Anopheles) pseudopunctipennis Dyar, Ins. Ins. Mens., vi, 143, 1918.
Anopheles (Proterorhynchus) pseudopunctipennis Dyar, Proc. U. S. Nat. Mus., lxii, 107, 1922.
Anopheles (Anopheles) pseudopunctipennis Root, Am. Jn. Hyg., iii, 274, 1923.
Anopheles (Anopheles) pseudopunctipennis Christophers, Ind. Med. Res. Mem., iii, 26, 1924.
Anopheles pseudopunctipennis Root, Am. Jn. Hyg., iv, pl. v, fig. 1, 1924.
Anopheles (Anopheles) pseudopunctipennis Bonne and Bonne-Wepster, Mosq. of Surinam, Roval Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 518, 1925.
Anopheles pseudopunctipennis Dyar, Ins. Ins. Mens., xiii, 31, 1925.
Anopheles (Anopheles) pseudopunctipennis Dyar, Ins. Ins. Mens., xiii, 188, 1925.
Anopheles pseudopunctipennis Dyar, Ins. Ins. Mens., xiii, 216, 1925.
Anopheles (Anopheles) pseudopunctipennis Freeborn, Mosq. of Calif., 454, 1926.
Anopheles pseudopunctipennis Davis, Am. Journ. Trop. Med., vii, 167, 1927.

Female—Proboscis moderate, straight, black, labellæ pale. Palpi as long as proboscis, black, with small white rings at the bases of the joints (three rings). Occiput with rather broad white scales in the middle in front, triangular black ones at the sides and behind. Mesonotum broadly gray in the middle, black at the sides, with a narrow median dark line in the integument, covered with rather stout, sparse, white hairs which become broad and almost scale-like on the anterior fifth centrally; pleuræ pale luteous grayish. Abdomen blackish, with black and pale hairs; a few minute pale scales on posterior segments dorsally. Legs black, with bronzy reflection, femora somewhat pale below; tips of femora and tibiæ yellowish white. Wing-scales black and yellowish white, the pale color distributed as follows: Four costal spots, the two basal ones on subcostal vein only; third vein at base and broadly mesially; fifth vein at base and outer half to fork, half of lower fork and a spot on upper; tips of veins pale, with yellowish spots in the fringe opposite them.

Male—Coloration of the female. Last two palpal joints enlarged, partly yellowish-scaled. Hypopygium (Plate CXVI, Fig. 398): Side-piece stoutly conical; two spines near base, their bases approximate; a slender spine at outer third of side-piece. Clasper long, somewhat attenuated mesially, with short, stout, inserted terminal spine. A high conical basal membrane. Basal membranous lobes with two spines laterad of the middle, and beside them small ovate lobes with three claw-like spines. Mesosome rather small, tubular, with two pairs of strongly serrate delicate leaflets at tip, often difficult to see.

Larva (Plate CXVI, Fig. 398)—Head rounded, elongate, bulging at the sides, front conically produced; head-hairs single, numerously branched, in a line between the antennæ; antennæ spined, a single smooth hair toward base. Abdomen with paired float-hairs on third to seventh segments. Lateral plate of eighth segment with a comb of long and short spines, irregularly mixed, the short ones from one-third to nearly one-half as long as the long ones. Anal segment about as long as wide, with a small dorsal plate; dorsal tuft a long hair and short brush on each side; a single long lateral hair below the plate; ventral brush well developed, of long branched hairs. Anal gills moderate, about as long as the segment, blunt.

California, Arizona, Tennessee (Memphis, September, 1920, Bruce Mayne), southern Texas, Mexico, Central America, Panama, Ecuador, Peru, Colombia, Venezuela, Bolivia, Argentina.

The larvæ occur in ground-pools, especially the semipermanent ones left by seasonal rains in arid country. This is probably the principal vector of malaria in the drier regions. It is not confined to such regions, being common in Panama after the rains. I have no specimens from the Antilles, Trinidad, the Guianas or Brazil.

ANOPHELES (ANOPHELES) PUNCTIPENNIS (Say)

CULEX PUNCTIPENNIS Say, Journ. Acad. Nat. Sci. Phil., iii, 9, 1823.
CULEX HYEMALIS Fitch, Am. Journ. Agr. and Sci., v, 281, 1851.
ANOPHELES PERPLEXENS Ludlow, Can. Ent., xxxix, 267, 1907.
Anopheles punctipennis Dyar, Ins. Ins. Mens., iv, 51, 1916.
Anopheles punctipennis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1009, 1917.
Anopheles (Anopheles) punctipennis Dyar, Ins. Ins. Mens., vi, 144, 1918.

Anopheles (Anopheles) punctipennis Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 118, 1921.
Anopheles (Anopheles) punctipennis Dyar, Proc. U. S. Nat. Mus., lxii, 103, 1922.
Anopheles (Anopheles) punctipennis Root, Am. Jn. Hyg., iii, 273, 1923.
Anopheles punctipennis Root, Am. Jn. Hyg., iv, 719, 1924.
Anopheles punctipennis Root, Am. Jn. Hyg., iv, pl. v, fig. 2, 1924.
Anopheles (Anopheles) punctipennis Christophers, Ind. Med. Res. Mem., iii, 25, 1924.
Anopheles punctipennis Russell, Am. Jn. Hyg., v. 149, 1925.
Anopheles punctipennis Hearle, Nat. Res. Counc., Rept. No. 17, 44, 1926.
Anopheles (Anopheles) punctipennis Freeborn, Mosq. of Calif., 451, 1926.

Female—Proboscis straight, black, labellæ pale. Palpi as long as proboscis, rather slender, black. Occiput black, with rather broad, curved white scales in front, triangular black ones behind. Mesonotum broadly gray in the middle, the sides black, and a narrow median line in the integument, with sparse pale hairs, those in the middle in front denser, almost tufted, but not thickened; pleuræ sordid pale. Abdomen blackish with many pale hairs and blackish ones laterally. Legs black, tips of femora and tibiæ narrowly more or less whitish. Wing-scales black with spots of pale yellow ones, as follows: A large spot on costa, involving costa, first vein, and base of second before the fork; a small spot at apex and on lower fork of second vein; base of fourth vein and middle of both forks; spot on upper fork of fifth vein, sometimes the costal spots reduced *(perplexens)*.

Male—Coloration of the female. Palpi with the last two joints enlarged. Hypopygium (Plate CXVI, Fig. 399): Side-piece stoutly conical; two spines toward base, approximate at origin; a single spine outwardly at about the middle. Clasper long, attenuated centrally, with short, inserted stout terminal spine. A high conical basal membrane. Membranous lobes slightly spinulose inwardly, with an inward spine, a small median one, and outward large one, and two approximated marginal spines, their tips narrowly rounded. Mesosome long, tubular, uniform, with three pairs of long narrow leaflets at tip, the outermost the longest.

Larva (Plate CXVI, Fig. 399)—Head rounded, elongate, bulging at the sides, front conically produced; head-hairs single, numerously branched, in line between the antennæ; two long approximate setæ on the front margin. Antennæ spinulated, with a tuft of four hairs at basal third. Lateral plate of eighth segment with posterior comb of spines of various lengths, irregularly arranged. Abdomen with paired float-hairs on second to seventh segments, the first pair small. Anal segment about as long as wide, with a small dorsal plate; dorsal tuft a long and a short brush on each side; a single long lateral hair below the plate; ventral brush well developed, of long branched tufts. Anal gills moderate, about as long as the segment, blunt.

Southern Canada, United States, Mexican table-land, Venezuela.

The larvæ live in ground-pools of various character, even transient rain-pools. Dr. M Núñez T. has sent me a single female which he assures me was taken in Venezuela. The markings are normal, except that the pale mark at base of fourth vein is somewhat enlarged. This is not considered a dangerous carrier of malaria.

ANOPHELES (ANOPHELES) CRUCIANS Wiedemann

ANOPHELES CRUCIANS Wiedemann, Ausser. Zweifl. Ins., i, 12, 1828.
Anopheles crucians Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., 1023, 1917.
Anopheles (Anopheles) crucians Dyar, Ins. Ins. Mens., vi, 144, 1918.
Anopheles (Anopheles) crucians Dyar, Proc. U. S. Nat. Mus., lxii, 107, 1922.
Anopheles (Anopheles) crucians Root, Am. Jn. Hyg., iii, 273, pl. vii, fig. 3, 1923.
Anopheles (Anopheles) crucians Christophers, Ind. Med. Res. Mem., iii, 26, 1924.
Anopheles (Anopheles) crucians Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No xxi, Afd. Trop. Hyg. No. 13, 519, 1925.
Anopheles crucians Russell, Am. Jn. Hyg., v, 149, 1925.

Female—Proboscis straight, black. Palpi black, a broad white ring at base of each joint, the last wholly white or with a small black spot. Occiput black, with narrow white scales in front, broad, triangular black ones behind. Mesonotum broadly gray in the middle, blackish on the sides; hairs sparse, pale, those on anterior edge thicker and stiffer, white; pleuræ gray, coxæ luteous. Abdomen blackish, with many pale and dark hairs. Legs black, femora and tibiæ slightly whitish at extreme tips. Wing-scales black and white, the white arranged as follows: Extreme tip of wing; outer half of stem of second vein; a few scales on first vein within the cell; base of stem of fourth vein and a spot on each fork; indistinctly on both branches of fifth vein; sixth vein all white, except three rather small black spots, at base, apex, and middle.

Male—Coloration of the female. Palpi with the last two joints enlarged, more or less whitish. Hypopygium (Plate CXVII, Fig. 400): Side-piece stoutly conical; two large approximate spines near base and a single slender one beyond the middle. Clasper long, stout, attenuated centrally, with short, thick, inserted terminal spine. Basal membranous lobe narrow, lightly pilose, bearing a very small hair inwardly, two stout ones at tip and a rather slender one on outer aspect. Mesosome long, columnar, with four pairs of narrow appendages at tip, the outermost the longest.

Larva (Plate CXVII, Fig. 400)—In general similar to the larva of *punctipennis* and of the usual type. From *punctipennis* separable by the presence of two subdorsal tufts on abdominal segments 4 and 5 in front of the float-hairs, these tufts in fives, whereas in *punctipennis* there is only one tuft so situated and that two-haired; post-clypeal hair single; antennal hair long. "Antennal and anterior external clypeal hairs like *quadrimaculatus*. Anterior internal clypeal hairs usually like *punctipennis*, but may be like *quadrimaculatus*. Posterior clypeal hairs usually long, one- to three-branched, situated like *punctipennis*. Hair nearest mid line in dorsal submedian group may be like *quadrimaculatus*. Middle hair of this group may have branches arising from about a point near middle of stem. Palmate hairs on thorax and abdominal segments, one and two small or rudimentary, well developed on segment three to seven, three and seven usually being smaller than the others. Lateral hairs on segments four to six having one to five branches, antepalmate hairs on segments four and five having from four to nine branches. A dorsal submarginal hair anterior and medial to the antepalmate and having four to nine branches." (Russell).

Coastal region of eastern United States, New York to Florida, Cuba, Gulf States, Mexico (Tampico).

The larvæ live in ground-pools, by preference with some admixture of salt, although not confined to such pools. The species is apparently a serious carrier of malaria.

ANOPHELES (ANOPHELES) MACULIPENNIS Meigen

ANOPHELES MACULIPENNIS Meigen, Syst. Beschr. Zweifl. Ins., i, 11, 1818.
ANOPHELES OCCIDENTALIS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 159, 1906.
Anopheles (Anopheles) occidentalis Dyar, Ins. Ins. Mens., iv, 51, 1916.
Anopheles occidentalis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1026, 1917.
Anopheles (Anopheles) occidentalis Dyar, Ins. Ins. Mens., v, 102, 1917.
Anopheles (Anopheles) occidentalis Dyar, Ins. Ins. Mens., vi, 144, 1918.
Anopheles occidentalis Dyar, Ins. Ins. Mens., vii, 31, 1919.
ANOPHELES LEWISI Ludlow, Psyche, xxvii, 74, 1920.
ANOPHELES SELENGENSIS Ludlow, Psyche, xxvii, 77, 1920.
Anopheles occidentalis Dyar, Ins. Ins. Mens., viii, 21, 1920.
Anopheles (Anopheles) occidentalis Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 119, 1921.
Anopheles (Anopheles) maculipennis Edwards, Bull. Ent. Res., xii, 272, 1921.
Anopheles (Anopheles) maculipennis Dyar, Proc. U. S. Nat. Mus., lxii, 105, 1922.
Anopheles maculipennis Dyar, Ins. Ins. Mens., x, 66, 1922.
Anopheles maculipennis Matheson and Shannon, Ins. Ins. Mens., xi, 59, 1923.
Anopheles (Anopheles) maculipennis Root, Am. Jn. Hyg., iii, 273, 1923.
Anopheles (Anopheles) maculipennis and var. *occidentalis* Christophers, Ind. Med. Res. Mem., iii, 21, 1924.
Anopheles maculipennis Hearle, Nat. Res. Counc., Rept. No. 17, 46, 1926.
Anopheles (Anopheles) maculipennis Freeborn, Mosq. of Calif., 448, 1926.
Anopheles claviger Falleroni (not Meigen), variety MESSEÆ Falleroni, Riv. de Mal., v, 564, 1927.
Anopheles claviger Falleroni (not Meigen), variety LABRANCHIÆ, Falleroni, Riv. de Mal., v, 564, 1927.

Female—Proboscis straight, black. Palpi as long as the proboscis, rather slender, black. Occiput black, with erect, thick, white scales in front, black ones behind, erect and with slightly forked tips. Mesonotum broadly gray in the middle, black on the sides, with whitish hairs which form an anterior tuft; pleuræ grayish brown. Abdomen blackish, with many pale hairs. Legs black, femora and tibiæ whitish at tips. Wing-scales black, the fringe at apex brassy white; the black scales are denser, forming spots at origin of second vein, on the cross-veins, and at bases of forks of second and fourth.

Male—Coloration of the female. Palpi with the last two joints enlarged. Hypopygium (Plate CXVII, Fig. 401): Side-piece stoutly conical; two large spines near the base, approximate, the inner stouter than the outer; a spine inwardly beyond the middle. Clasper long, attenuated centrally, with short, thick, inserted terminal spine. Basal membranous lobes pilose inwardly; a stout spine on inner face, a small one, a stout spine at apex, and three outer ones, indistinctly separated on a lobe, all pointed. Mesosome rather long, tubular, flared at base, with three pairs of slender, pointed terminal appendages, the outer longest.

Larva (Plate CXVII, Fig. 401)—Of the usual type, differing only in minute details from the larvæ of *quadrimaculatus*, *punctipennis*, etc. Abdomen with five pairs of dorsal float-hairs, equal in size, without slender prolonged apex.

North Europe, Asia, and America. California to Alaska (Yukon Valley), British Columbia and eastward through Canada and northern edge of United States to the Atlantic; New Mexico at high altitude (Española,

New Mexico, 5,600 feet, September 23, 1927, M. A. Barber), and probably through the Rocky Mountains.

The larvæ occur in small permanent pools, open to the sun and containing algæ. The waste water from irrigation, wherever standing, furnishes breeding conditions. The species is considered the principal vector of malaria in the regions which it inhabits.

ANOPHELES (ANOPHELES) QUADRIMACULATUS Say

ANOPHELES QUADRIMACULATUS Say, Keat. Narr. Exp. Pet. Riv., ii, 356, 1824.
ANOPHELES GUTTULATUS Harris, Hitch. Rept. Geol. Min. Bot. Zool. Mass., 595, 1835.
ANOPHELES ANNULIMANUS van der Wulp, Tidj. voor Ent., x, 129, 1867.
Anopheles quadrimaculatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1028, 1917.
Anopheles (Anopheles) quadrimaculatus Dyar, Ins. Ins. Mens., vi, 144, 1918.
Anopheles quadrimaculatus Hearle, Can. Ent., lii, 115, 1920.
Anopheles (Anopheles) quadrimaculatus Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 120, 1921.
Anopheles (Anopheles) quadrimaculatus Dyar, Proc. U. S. Nat. Mus., lxii, 104, 1922.
Anopheles (Anopheles) quadrimaculatus Root, Am. Jn. Hyg., iii, 272, 1923.
Anopheles quadrimaculatus Root, Am. Jn. Hyg., iv, 711, 1924.
Anopheles (Anopheles) quadrimaculatus Christophers, Ind. Med. Res. Mem., iii, 22, 1924.
Anopheles quadrimaculatus Dyar, Ins. Ins. Mens., xii, 41, 1924.
Anopheles quadrimaculatus Russell, Am. Jn. Hyg., v, 149, 1925.

Female—Proboscis straight, black. Palpi as long as proboscis, rather slender, black. Occiput black, the scales all of the erect, forked type, those in front brownish white, posteriorly black. Mesonotum all brownish, more blackish on the dorsum than on the sides, more or less whitish-streaked, with many pale yellowish hairs; pleauræ gray-brown and blackish. Abdomen blackish, with many pale yellowish hairs, blackish in certain lights. Legs brown-black, the femora and tibiæ yellowish white at tips. Wing-scales black, somewhat indistinctly forming spots at origin of second vein, on the cross-veins, and at bases of forks of second and fourth.

Male—Coloration of the female. Last two joints of palpi enlarged. Hypopygium (Plate CXVIII, Fig. 402): Side-piece thickly conical; two large approximate spines near base; a slender one inwardly beyond middle of side-piece. Clasper long, attenuated mesially, with short, thick, inserted terminal spine. Basal membranous lobes pilose inwardly, with two very small spines, a long and a short pointed spine at tip, and outwardly two approximate broad, rounded-tipped spines. Mesosome rather long, tubular, flared at base, with three pairs of narrow appendages at tip, the outermost the longest.

Larva (Plate CXVIII, Fig. 402)—Of the usual type in the genus, almost indistinguishable from that of *punctipennis*. Root points out the following differences, which, taken together, may separate the two species in most cases: Float-hairs of the second abdominal segment few, but mainly of the normal notched type and pigmented (in *punctipennis* they are lanceolate, not notched and not pigmented); anterior hair in front of the float-hair on abdominal segments four and five, single (in *punctipennis* this hair is widely cleft, double; sometimes in three, rarely single).

Atlantic States and Mississippi Valley from New York and Illinois to the Gulf of Mexico, Mexico (Tampico and Morelia; Jaral de Progreso, Guanajuato, December, 1926, A. L. Herrera).

The larvæ occur in permanent ground-pools, usually with algæ. Artificial ponds containing vegetation and rice-fields form an ideal breeding-ground. The species is a strong carrier of malaria, harboring all three forms of the parasite.

ANOPHELES (ANOPHELES) BARBERI Coquillett

ANOPHELES BARBERI Coquillett, Can. Ent., xxxv, 310, 1903.
Cœlodiazesis barberi Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1036, 1917.
Anopheles (Cœlodiazesis) barberi Dyar, Ins. Ins. Mens., vi, 142, 1918.
Anopheles (Cœlodiazesis) barberi Dyar, Proc. U. S. Nat. Mus., lxii, 108, 1922.
Anopheles (Anopheles) barberi Root, Am. Jn. Hyg., iii, 271, 1923.
Anopheles (Anopheles) barberi Christophers, Ind. Med. Res. Mem., iii, 20, 1924.

Female—Proboscis moderate, black. Palpi as long as proboscis, slender, black, shortly hairy at tip. Occiput black, with erect forked scales only, whitish in front and subdorsally, blackish elsewhere. Mesonotum rounded, shorter than usual, brown, with many blackish hairs; pleuræ dark brown. Abdomen black, with coarse blackish hairs. Legs black, with bronzy reflection, femora paler below toward base; no pale spots at the joints. Wing-scales blackish, uniform, the costa darker.

Male—Coloration of the female. Palpi with the last two joints enlarged. Hypopygium (Plate CXVIII, Fig. 403): Side-piece short, elliptical, rounded; two large spines approximate near base; a single slender spine at apical third. Clasper much longer than side-piece, attenuated in the middle, with very short, thick, inserted terminal spine. Membranous basal lobes slightly pilose inwardly, with a minute spine, a slender one, a stout one, and a slender one closely approximated; outside of this a thick oval lobe bearing three ovately flattened setæ.

Larva (Plate CXVIII, Fig. 403)—Head rounded, elongate, longer than wide, front broadly and somewhat flatly arcuate; hairs all very small, simple; antennæ smooth, a single hair at middle; terminal processes three, equal. Abdomen with a series of long, feathered lateral hairs, double on first two segments, single on third to sixth; four pairs of dorsal float-hairs on third to sixth segments. Lateral plates of eighth segment with posterior pecten of long spines without shorter ones between except apically. Anal segment as long as wide, dorsal plate finely spinulated behind; dorsal tuft of two brushes on each side; ventral brush of long branched tufts. Anal gills moderate, about as long as the segment, bluntly pointed.

Pennsylvania, New Jersey, Iowa, Maryland, Virginia, North Carolina, South Carolina, Mississippi, Arkansas.

The larvæ live in the water in tree-holes, and are reported to be occasionally cannibalistic upon other mosquito larvæ found in their habitat. It is probable that the adult has no connection with the transmission of malaria. The species is rare.

ANOPHELES (ANOPHELES) ATROPOS Dyar and Knab

ANOPHELES ATROPOS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 160, 1906.
Anopheles atropos Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1032, 1917.
Anopheles (Anopheles) atropos Dyar, Ins. Ins. Mens., vi, 145, 1918.
Anopheles atropos Ludlow, N. O. Med. and Surg. Journ., lxxii, 143, 1919.
Anopheles (Anopheles) atropos Dyar, Proc. U. S. Nat. Mus., lxii, 106, 1922.
Anopheles atropos Beyer, Ins. Ins. Mens., xi, 51, 1923.
Anopheles (Anopheles) atropos Root, Am. Jn. Hyg., iii, 272, 1923.
Anopheles (Anopheles) atropos Christophers, Ind. Med. Res. Mem., iii, 22, 1924.
Anopheles atropos Komp, Ins. Ins. Mens., xiv, 168, 1927.
Anopheles atropos Griffiths, Pub. Health Repts., xlii, No. 29, 1927.

Female—Proboscis straight, black. Palpi as long as proboscis, black, with small, faint whitish rings at the bases of the joints. Occiput black, with erect forked scales and long bristles, all black. Mesonotum black, with brownish or black hairs; pleuræ black. Abdomen blackish, with brown-black hairs. Legs brown-black, without spottings. Wing-scales black, without spots.

Male—Coloration of the female. Palpi with the last two joints moderately enlarged, with many hairs which are yellowish at base. Hypopygium (Plate CXIX, Fig. 404): Side-piece moderate, conical; two stout approximate spines near base; a slender spine inwardly at apical third. Clasper stout, not much longer than the side-piece, slightly attenuated centrally, with very short, stout, inserted terminal spine. Basal membranous lobe pilose within; a long spine inwardly, a minute one apically, succeeded by a large one; a slight lobe beyond bearing two flattened round-tipped spines, club-shaped outwardly. Mesosome stout, columnar, with three pairs of appendages at tip, the outer pair longest, twice as long as the second.

Larva (Plate CXIX, Fig. 404)—No characters have yet been found to separate this larva from that of *walkeri* or *quadrimaculatus*.

Gulf coast of United States, Florida, Mississippi, Louisiana.

The larvæ occur in brackish pools along the coast. Nothing is known of the malaria-carrying capacity of this species, if indeed it has any.

ANOPHELES (ANOPHELES) WALKERI Theobald

ANOPHELES WALKERI Theobald, Mon. Culic., i, 299, 1901.
Anopheles walkeri Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1033, 1917.
Anopheles (Anopheles) walkeri Dyar and Knab, Ins. Ins. Mens., vi, 145, 1918.
Anopheles (Anopheles) walkeri Dyar, Trans. Royal Can. Inst., Toronto, xiii, pt. 1, 120, 1921.
Anopheles (Anopheles) walkeri Dyar, Proc. U. S. Nat. Mus., lxii, 106, 1922.
Anopheles (Anopheles) walkeri Matheson and Shannon, Ins. Ins. Mens., xi, 61, 1923.
Anopheles (Anopheles) walkeri Root, Am. Jn. Hyg., iii, 272, 1923.
Anopheles (Anopheles) walkeri Christophers, Ind. Med. Res. Mem., iii, 22, 1924.
Anopheles walkeri Komp, Ins. Ins. Mens., xiv, 172, 1927.

Female—Proboscis moderate, slightly curved, black. Palpi as long as the proboscis, rather slender, black, with yellowish white rings at the tips of all the joints. Occiput black, a whitish spot on each side, scales all of the erect forked type, black. Mesonotum dark brown, more or less streaked with whitish, with many pale brown hairs; pleuræ brown and grayish. Abdomen black, with yellowish brown hairs. Legs black, with bronzy reflection, femora and tibiæ yellowish white at tips. Wing-scales black,

not or faintly forming spots at bases of second to fourth veins and forks of second and fourth.

Male—Coloration of the female. Palpi with the last two joints enlarged, black, without any white rings. Hypopygium (Plate CXIX, Fig. 405): Side-piece stoutly conical; two stout approximate spines near base and a rather stout one at outer third within. Clasper much longer than side-piece, rather thick, slightly attenuated centrally, with short inserted thick terminal spine. A high conical basal membrane. Membranous basal lobes pilose within, with a long spine, a minute one and a stout long one; outer lobe partially separated, bearing two rather slender flattened spines with rounded tips. Mesosome stoutly tubular, with three pairs of appendages at the tip, subequal, the terminal pair only a little longest.

Larva (Plate CXIX, Fig. 405)—As in *quadrimaculatus*, no differences being apparent. "Hair 2" of the fourth and fifth abdominal segments is single or double (in about 30 per cent), Matheson and Shannon's figure (Ins. Ins. Mens., xi, Plate III, page 64, 1923) being in error in regard to the fourth segment, where a branched hair is incorrectly shown.

Ontario, Michigan, New York, Massachusetts, Maryland, Virginia, Louisiana.

The larvæ occur in permanent or semipermanent water containing much vegetation. Komp found them in water covered with water hyacinth; Jennings got them in a periodic marsh occasionally filled by overflow of a river (this locality since destroyed by the advance of human activity). It has not been shown that the species carries malaria, although such is not improbably the case. The species is not abundant.

ANOPHELES (ANOPHELES) ANNULIPALPIS Lynch Arribálzaga

ANOPHELES ANNULIPALPIS Lynch Arribálzaga, Nat. Arg. i, 149, 1878.
Anopheles annulipalpis Theobald, Mon. Culic., i, 211, 1901.
Anopheles annulipes Theobald (not Walker), Mon. Culic., v, 84, 1910.
Anopheles annulipalpis Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 54, 1911.
Anopheles annulipalpis Neiva, La Semana Médica, No. 48, 1915.
Anopheles (Anopheles) annulipalpis Dyar, Ins. Ins. Mens., vi, 145, 1918.
Anopheles annulipalpis Petrocchi, Rev. Inst. Bact. B. A., ii, 299, 1919.
Anopheles (Anopheles) annulipalpis Christophers (in part), Ind. Med. Res. Mem., iii, 34, 1924.

Female—Proboscis stout, straight, black. Palpi as long as the proboscis, rather stout, black, with white rings at the tips of all the joints and numerous small whitish mottlings in the black areas. Occiput dark brown, covered with dense, erect, forked white scales, those toward the front thick and whiter, with a tuft of white between the eyes. Mesonotum gray; a long blackish bare streak on each side from the middle to posterior margin; a narrow blackish median line, more intense behind; covered with short brownish hairs, those on anterior edge white and somewhat tufted; pleuræ with a dark brown band above, grayish and mottled below. Abdomen black, with pale brownish hairs. Legs black; femora, tibiæ, and first tarsal joints with numerous white speckles; tarsi tipped with white, except the last two joints on fore and mid legs; hind tarsi with fourth and fifth joints entirely white. Wings spotted black and white; costa entirely black; third vein nearly all white, small spots near base and tip only; fourth vein largely white from base to the fork; other veins evenly spotted, black and white.

Male—Unknown.
Larva—Unknown.
Argentina.
The life-history is unknown. The species is probably not a malaria carrier, as Petrocchi states that it does not occur in the malarious parts of Argentina.

ANOPHELES (ANOPHELES) GRABHAMII Theobald

ANOPHELES GRABHAMII Theobald, Mon. Culic., i, 205, 1901.
Cycloleppteron grabhamii Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 56, 1911.
Anopheles grabhamii Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 1006, 1917.
Anopheles (Cycloleppteron) grabhamii Dyar, Ins. Ins. Mens., vi, 146, 1918.
Anopheles (Anopheles) grabhamii Root, Am. Jn. Hyg., iii, 274, 1923.
Anopheles grabhamii Root, Am. Jn. Hyg., iv, pl. v, fig. 4, 1924.
Anopheles (Anopheles) grabhamii Christophers, Ind. Med. Res. Mem., iii, 33, 1924.
Anopheles (Anopheles) grabhamii Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 517, 1925.

Female—Proboscis moderate, straight, black. Palpi as long as the proboscis, vestiture somewhat shaggy, black. Occiput blackish, with erect, forked scales, white in front, where they are somewhat thickened, black behind. Mesonotum gray, a narrow dark central line and small rounded spot on each side centrally, with numerous short white hairs, somewhat tufted anteriorly; pleuræ dark gray, spotted. Abdomen black with blackish hairs. Legs blackish, femora paler beneath; femora and tibiæ mottled with small, indistinct whitish spots; tarsi with narrow yellowish white rings at the articulations, principally the bases of the joints. Wing-scales black and white, the white scales small and inconspicuous, the black ones large, inflated, broadly elliptical and conspicuous; costal edge black, except for a small outer spot and spots at apex; veins largely white scaled, the black scales forming spots at middle of costa, bases of forks of second and fourth veins, origin of third, and distributed specks on fifth and sixth veins.

Male—Coloration of the female. Palpi with the last two joints enlarged and sometimes whitish-shaded. Hypopygium (Plate CXX, Fig. 406): Side-piece stoutly conical; two large spines from enlarged bases approximate near base; a slender spine outwardly beyond middle. Clasper long, broadly attenuated mesially, with small, stout, inserted terminal spine. A high conical basal membrane. Membranous basal lobes pilose inwardly; a slender spine, a minute one, a stout one at apex; two stout spines on a partly formed lateral lobe are rather thin, with blunt tips. Mesosome stout, a little tapered, tubular, with two pairs of appendages at tip, the outer long, inner minute.

Larva (Plate CXX, Fig. 406)—Head rounded, elongate, longer than wide, front conically produced; head-hairs single, numerously branched, in a line between the antennæ; antennæ spinulate, two digits and a four-branched hair at the tip; lower single clypeal hairs separated by over the diameter of a tubercle. Abdomen with long, feathered, lateral hairs on first three segments, double on first and second, single on third; five pairs of float-hairs on third to seventh segments; lateral comb of the eighth segment with six very long teeth, the short ones one-third their length, arranged as follows: One long, one short, one long, two short, one long, three short, one long,

two short, two long. Anal segment as long as wide, with a small dorsal plate; dorsal tuft a long and a short brush on each side; a single lateral hair below the plate; ventral brush well developed, of long, branched tufts, each branched from a single stem, the upper somewhat dendritic, lower radial. Anal gills about as long as the segment.

Antilles and Virgin Islands.

The larvæ occur in various ground-pools. The adults bite readily, but probably do not carry malaria.

ANOPHELES (ANOPHELES) VESTITIPENNIS Dyar and Knab

ANOPHELES VESTITIPENNIS Dyar and Knab, Proc. Biol. Soc. Wash., xix, 136, 1906.
Anopheles vestitipennis Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 989, 1917.
Anopheles (Anopheles) vestitipennis Dyar, Ins. Ins. Mens., vi, 145, 1918.
Anopheles vestitipennis Dyar, Ins. Ins. Mens., xii, 171, 1924.
Anopheles (Anopheles) vestitipennis Christophers, Ind. Med. Res. Mem., iii, 33, 1924.
Anopheles (Anopheles) vestitipennis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 529, 1925.

Female—Proboscis somewhat curved, a little shaggy, black. Palpi as long as proboscis, shaggy, black; a few white scales at the articulations of the joints, the last joint black. Occiput black, with erect, forked black scales, a few of them by the eye-margin white. Mesonotum dark grayish brown; two narrow darker lines anteriorly, and many short, brownish hairs. Abdomen black, with brown hairs. Legs black; femora, tibiæ, and first tarsal joint sparsely speckled with small distinct white spots; tarsi with small white rings involving both ends of the joints, more pronounced on the hind legs, though the last hind tarsal is black at tip. Wing scales narrow, largely black; small yellow specks variously distributed, three or four along the costa and others at apex, less numerous on the other veins, though the sixth vein is evenly spotted, six black and six yellow; the costa-subapical spottings sometimes form a curved or forked line.

Male—Coloration of the female. The palpi have the last two joints enlarged and slightly whitish. Hypopygium (Plate CXX, Fig. 407): Side-piece stoutly conical; two large approximate spines toward base; a single slender spine at outer fourth within. Clasper long, curved, a little attenuated centrally, with small, thick, inserted terminal spine. A high conical basal spinulose membrane. Basal membranous lobes narrow and high, pilose, a long, pointed spine inwardly and two shorter approximate pointed spines at tip; lateral elliptical lobe chitinized and separate from the membranous one, bearing two flattened spines with rounded tips, a little enlarged outwardly. Mesosome moderate, with expanded base, a single pair of narrow appendages at tip, each as long as the mesosome itself exclusive of the basal expansion.

Larva (Plate CXX, Fig. 407)—Head elliptical, longer than wide, front produced; antennæ stout, sparsely spinulose; head and anteantennal hairs in a transverse row, dendritically branched; single frontal hairs separated by the width of two tubercles. Abdomen with five pairs of dorsal float-hairs on third to seventh segments, single elements lanceolate, pigmented, with only a trace of notches. Lateral comb of the eighth segment with the spines very long and very short, alternating one and one. Anal segment as long as wide, with dorsal plate about half-encircling the segment; dorsal

tuft a large dendritic hair and a radiate one below; posterior edge of the segment spiny; ventral brush well developed from a semicircular base, of large dendritic tufts. Anal gills slender, much shorter than the segment, blunt.

Antilles, Dominica, Guatemala, Mexico, Panama.

The larvæ were found by Dr. W. C. Earle in ground-pools. The species is local and uncommon and is probably not capable of carrying malaria. Mr. W. H. W. Komp took several specimens of this species at Almirante, Panama, in February 1928.

ANOPHELES (ANOPHELES) MATTOGROSSENSIS Lutz and Neiva

ANOPHELES MATTOGROSSENSIS Lutz and Neiva, Mem. Inst. O. Cruz, iii, 297, 1911.
Anopheles mattagrossensis Peryassú, Arch. do Mus. Nac. Rio de Jan., xxiii, 13, 1921.
ANOPHELES AMAZONICUS Christophers, Ann. Trop. Med. and Par., xvii, 71, 1923.
Anopheles (Anopheles) amazonicus and *mattogrossensis* Christophers, Ind. Med. Res. Mem., iii, 33, 1924.
Anopheles vestitipennis Dyar (not Dyar and Knab), Ins. Ins. Mens., xiii, 216, 1925.
Anopheles (Anopheles) mattogrossensis and *amazonicus* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 543, 1925.

Female—Proboscis a little shaggy, black. Palpi as long as proboscis, shaggy, black; a few white scales or narrow rings at the articulations, the last joint black. Occiput black, with erect, forked black scales, a few of them by the eye-margin white. Mesonotum blackish brown, with indistinct narrow darker lines; many short brownish hairs. Abdomen black, with brown hairs. Legs black; femora and tibiæ narrowly whitish at tips, the tarsi with very narrow white rings at the articulations, involving both ends of the joints, but the last hind tarsal black at tip. Wing-scales narrow, black predominating; there are a few yellow specks, especially costally outwardly and sometimes a little streak of conjoined spots across apex, the spottings of *vestitipennis* more or less obviously indicated, dulled.

Male—Unknown.

Larva—Unknown.

Brazil and Venezuela (Catatumbo River).

This species may be a form of *vestitipennis*, from which it differs only in a general darkening, the loss of white specks on the legs, and a smoky dulling of the pale wing-spots. It is presumably not a malaria carrier.

ANOPHELES (ANOPHELES) CELIDOPUS Dyar and Shannon

ANOPHELES CELIDOPUS Dyar and Shannon, Journ. Wash. Acad. Sci., xv, 41, 1925.

Female—Proboscis black. Palpi as long as proboscis, shaggy, black, a few white scales or none at the articulations of the joints. Occiput dark gray, with erect, forked black scales, most of the anterior ones whitish, and a white tuft between eyes. Mesonotum dark gray; a round black subdorsal central spot on each side, and one medianly behind; vestiture of short pale hairs, those on anterior edge a little stiffer and whiter; pleuræ mottled with pale and black. Abdomen black, with black hairs, whitish on posterior edges of last two segments, a few on penultimate segment flattened and scale-like. Legs black, femora and tibiæ very narrowly whitish at tips; tarsi with yellowish white rings at the articulations, involving both ends of the joints, broad on the articulations 1 to 2, 2 to 3, and 3 to 4 on front-legs, very narrow on the others, even on the hind tarsi. Wing-scales nar-

row, black and white, the white appearing in fine specks throughout; two large costal spots involving three veins, a small one involving two veins preceding, the apex with a very small spot; other veins rather evenly spotted, black and white, the sixth vein with six black spots alternating with white.

Male—Unknown.

Larva—Unknown.

Brazil (Amazonas).

Without the male, the relations of this species are uncertain. I presume it to be not a malaria carrier.

ANOPHELES (ANOPHELES) ALAGOANII Peryassú

ANOPHELES ALAGOANII Peryassú, A Folha Medica, vi, 258, 1925.

Female—Proboscis shorter than the abdomen, black. Palpi about as long as the proboscis, shaggy, black, with white scales at the articulations of the joints, forming little rings. Occiput black, with erect ovate or spatulate scales of different sizes, creamy white in the middle and dark on the sides; a white tuft between the eyes. Mesonotum yellowish gray with silvery reflection, with darker longitudinal stripes; three dark spots, two lateral, one posterior, covered with pale hair-like scales with golden reflection, except on the anterior edge, where there are groups of white scales, a little larger than the general vestiture. Abdomen dark, densely hairy, except the last two segments, which have some cream-colored scales and other dark ones. Legs black with coppery reflection, and little apical rings at all the articulations, accentuated on the tarsi, especially the posterior. Wing yellowish white, with dark spots, of which three are large on the costa; others small, distributed on the veins.

Male—Coloration of the female. Palpi with a white ring at the middle of the long joint; last two joints (enlarged), with creamy scales. The pale scales at tip of abdomen more abundant than in the female. Hypopygium unknown.

Larva—Unknown.

Brazil (Maceió, Alagôas).

This description reads much like *celidopus,* except that the tarsal rings are stated to be intensified on the hind-legs, while in the species mentioned it is the fore-legs that have the broader rings. I do not know *alagoanii* in nature.

ANOPHELES (ANOPHELES) PERYASSUI Dyar and Knab

MANGUINHOSIA LUTZI Cruz (not Cruz, 1901), Um Nov. Gen. Braz. Anoph., 1907.
Manguinhosia lutzi Peryassú, Os Culic. do Braz., 32, 1908.
ANOPHELES PERYASSUI Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 53, note, 1908.
Manguinhosia lutzi Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 49, 1911.
Anopheles peryassui Knab, Am. Jn. Trop. Dis. and Prev. Med., i, 36, 1913.
Anopheles (Manguinhosia) peryassui Dyar, Ins. Ins. Mens., vi, 150, 1918.
Anopheles peryassui Bonne, Ned. Tijd. v. Gen. lxviii, 1924.
Anopheles (Anopheles) peryassui Christophers, Ind. Med. Res. Mem., iii, 35, 1924.
Anopheles (Anopheles) peryassui Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 541, 1925.

Female—Proboscis moderate, black, the scales somewhat raised on basal half. Palpi nearly as long as the proboscis, shaggy, black, a few white scales at the articulations of the joints. Occiput black, with ovate erect white scales in front and a tuft of white hairs between the eyes, the raised

scales at the sides and behind black. Mesonotum gray, with indistinct dark lines; a lateral rounded black spot and one behind; many short white hairs, those on anterior margin somewhat thicker and tufted. Abdomen black, with yellowish hairs; at apex of seventh segment and on eighth and ninth many fusiform, spatulate white scales. Legs black, the tibiæ and femora whitish at tip; tarsi with yellowish white narrow rings at the articulations involving both ends of the joints, less marked on the hind tarsi than on the fore and mid tarsi. Wings black and white spotted; two large costal black spots involving three veins and a subbasal one involving two veins, marked by little patches of white scales on each side, with brownish ones between; the other veins appear pale, spotted with black, strongest spots and bases of the forked cells, and on sixth vein, which has five dark spots, separated by paler scales.

Male—Unknown.

Larva—Unknown.

Brazil, Surinam.

Known to me only by a single female. Presumably not a malaria carrier.

ANOPHELES (ANOPHELES) MEDIOPUNCTATUS (Theobald)

CYCLOLEPPTERON MEDIOPUNCTATUS Theobald, Mon. Culic., iii, 60, 1903.

Cyclolepptеron mediopunctatum Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 57, 1911.

Anopheles mediopunctatus Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 993, 1917.

Anopheles (Arribalzagia) mediopunctatus Dyar, Ins. Ins. Mens., vi, 146, 1918.

ANOPHELES (CYCLOLEPIDOPTERON) ROCKEFELLERI Peryassú, A Folha Medica, iv, 68, 1923.

Anopheles mediopunctatus Bonne, Tijd. voor Ent., lxvi, 115, 1923.

Cyclolepptеron mediopunctatum Pinto, Anoph. de Angra dos Reis, 8, note, 1923.

Anopheles mediopunctatus Bonne, Ned. Tids. v. Gen., lxviii, 619, 1924

Anopheles (Anopheles) rockefelleri and *mediopunctatus* Christophers, Ind. Med. Res. Mem., iii, 33 and 34, 1924.

Anopheles (Anopheles) mediopunctatus Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 538, 1925.

Anopheles (Anopheles) mediopunctatus Dyar, Ins. Ins. Mens., xiii, 190, 1925.

Anopheles (Arribalzagia) mediopunctatum Root, in Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 52, 1926.

Anopheles (Arribalzagia) mediopunctatum Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 40, fig. 8, 1926.

Anopheles (Anopheles) mediopunctatus Root, Am. Journ. Hyg., vii, 601, 1927.

Female—Proboscis uniform, black. Palpi nearly as long as the proboscis, very shaggy, black, with white and yellowish scales scattered throughout, the tip of last joint largely yellowish. Occiput black, with short, erect scales, whitish in front, mostly brownish. Mesonotum violaceous gray, with a round black spot on each side and one posteriorly; vestiture of short pale yellowish hairs. Abdomen black, with pale yellowish hairs, the sides of the segments posteriorly with little raised tufts of ovate black scales, sometimes a few whitish ones intermixed. Legs black and yellow; femora and tibiæ black, with dense yellow specks, the tibiæ yellow at tip; tarsi yellow, speckled with black; the third hind tarsal has two black rings, the fourth one black ring, the fifth all yellow. Wing-scales black and white, mostly inflated and broadly elliptical; three black costal spots, beneath which the membrane is infuscated, first small, middle and subapical large,

with a small one at the tip of the forks of second vein; small spots at forks of second and fourth veins and at base of third; otherwise the black scales are rather evenly distributed and in nearly equal numbers with the white ones.

Male—Coloration of the female. Palpi with the last two joints enlarged, largely yellowish. Hypopygium: Side-piece conical; a stout spine from a pedicel near base, the second spine removed some distance from it laterally, more slender; third spine at basal third, stout; a long slender spine at apical fourth, nearly as long as the side-piece. Clasper long, broadly attenuated centrally, with small, stout, inserted terminal spine. A high, conical, basal membrane. Mesosome long and slender, tubular, with short leaflets at tip (one pair?). Membranous basal lobe bearing a long, flattened spine and a short, crooked one, which has three spines at apex and a curved filament; lateral elliptical lobe bearing (two?) flattened spines with rounded tips.

Larva—Head elongate, rounded, bulging at the sides; head-hairs and anteantennal hairs in a transverse line, single but feathered. Antennæ well spined, a tuft at basal fourth. Subdorsal float-hairs on third to seventh abdominal segments. Lateral comb of the eighth segment mostly one long spine followed by two very short ones. Anal segment as long as wide, with a small dorsal plate; ventral brush of long, branched tufts; dorsal tuft a long, dendritic hair and a fan-shaped one.

Brazil, Surinam.

The larvæ live in small ground-pools, mostly in the woods. The species probably does not carry malaria.

ANOPHELES (ANOPHELES) PUNCTIMACULA Dyar and Knab

ANOPHELES PUNCTIMACULA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 136, 1906.
ANOPHELES STRIGIMACULA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 136, 1906.
ANOPHELES MALEFACTOR Dyar and Knab, Journ. N. Y. Ent. Soc., xv, 198, 1907.
Anopheles apicimacula (in part), *strigimacula,* and *malefactor* Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 995, 998, and 1000, 1917.
Anopheles (Arribalzagia) punctimacula and *malefactor* Dyar, Ins. Ins. Mens., vi, 147, and 148, 1918.
ANOPHELES (ARRIBALZAGIA) VENEZUELÆ Evans, Ann. Trop. Med. and Par., xvi, 214, 1922.
Anopheles (Anopheles) strigimacula and *punctimacula* Root, Am. Jn. Hyg., iii, 275, 1923.
Anopheles (Anopheles) punctimaculata and var. *strigimacula* Christophers, Ind. Med. Res. Mem., iii, 34, 1924.
Anopheles punctimacula and *strigimacula* Root, Am. Jn. Hyg., iv, pl. v, figs. 5 and 6, 1924.
Anopheles (Anopheles) punctimacula and *malefactor* Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 530, 1925.
Anopheles mediopunctatus Dyar (not Theobald), Ins. Ins. Mens., xiii, 31, 1925.
Anopheles (Anopheles) punctimacula Dyar, Ins. Ins. Mens., xiii, 191, 1925.
Anopheles (Arribalzagia) punctimacula Root, in Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 52, 1926.

Female—Proboscis slightly curved, shaggy toward base, black. Palpi not quite as long as proboscis, shaggy, black, with white scales at the articulations, mostly basally on the joints; last joint dark at tip. Occiput black, with erect black scales, the most anterior ones white, with a white tuft between the eyes. Mesonotum violaceous gray, a round black spot on each side and one posteriorly. Abdomen black, with pale hairs; lat-

erally posteriorly on the segments are little tufts of black, elliptical scales with white ones adjacent. Legs black, densely speckled with white; on the hind tarsi the white is often more extensive, making the tarsi appear white with black rings, though the marking is very variable. Wing-scales elliptical, lanceolate, distinctly roundedly inflated on basal half of wing, black and white; the costa has three black patches, set off by white on either side, the basal one smaller; rest of the wing evenly speckled with small black and white spots; apex with small black unconsolidated spots only; fifth vein broadly white centrally and on base of lower fork.

Male—Coloration of the female. Palpi with the last two joints enlarged, black, hairy. Hypopygium (Plate CXXI, Fig. 408): Side-piece stoutly conical; two stout spines near base, rather approximate, on separate papillæ, the inner one stout, the outer slender; a slender spine beyond the middle within. Clasper long, attenuated centrally, with short, stout inserted terminal spine. Basal membranous lobe high and narrow, pilose, with two long spines and a minute one, the apical spine stouter than the subapical. Lateral ovate lobes with three rounded, flattened, appressed spines. Mesosome tubular, flared at base, with three or four pairs of terminal leaflets, the terminal pair large and more or less distinctly margined.

Larva (Plate CXXI, Fig. 408)—Head rounded, longer than wide, front conically produced; head-hairs single, numerously branched, in a line between antennæ. Abdomen with five pairs of float-hairs on third to seventh segments. Lateral plate of the eighth segment with five long spines and nine very short ones, irregularly alternating with them. Anal segment as long as wide, with a small dorsal plate; dorsal tuft a dendritic and a fan-shaped hair on each side; a single lateral hair below the plate; ventral brush of long, branched tufts. Anal gills moderate, blunt.

Mexico, Central America, Panama, Ecuador, Venezuela, Trinidad, Brazil.

The larvæ occur in ground-pools in the jungle. The adult has been shown to be incapable of transmitting malaria.

ANOPHELES (ANOPHELES) INTERMEDIUS (Peryassú)

ARRIBALZAGIA INTERMEDIUM Peryassú, Os Culic. do Braz., 85, 1908.

Arribalzagia intermedium Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 58, 1911.

Anopheles (Arribalzagia) intermedium Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 39, fig. 7, 1916.

Anopheles (Arribalzagia) intermedium Dyar, Ins. Ins. Mens., vi, 147, 1918.

Anopheles (Anopheles) punctimacula var. *intermedius* Christophers, Ind. Med. Res. Mem., iii, 35, 1924.

Anopheles intermedium Root, Am. Jn. Hyg., iv, 462, pl. v, fig. 9, 1924.

Anopheles (Anopheles) intermedium Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 527, 1925.

Female—Proboscis moderate, shaggy basally, black. Palpi nearly as long as proboscis, shaggy, black, with white scales at the articulations of the joints and at tip of last joint. Occiput black, with erect black scales, those in front white, and a white tuft between the eyes. Mesonotum gray, a black spot on each side and one posteriorly; vestiture of fine pale hairs. Abdomen black, with pale hairs; laterally posteriorly on the segments are little tufts of elliptical black scales, mixed with a few white ones. Legs black, densely speckled with white; on the hind tarsi the white spots are less scattered and tend to involve both ends of the joints with single spots

between, but the marking is variable. Wing-scales rather broadly ovate and inflated, broader on basal part of wing, black and white; four black spots along costal edge, the basal one small, the fourth apical, the membrane beneath infuscated, the two large spots partly outlined in white; rest of the wing rather evenly mottled with black and white scales.

Male—Coloration of the female. Palpi with the last two joints enlarged. Hypopygium (Plate CXXI, Fig. 409): Side-piece conical, one and a half times as long as wide; two spines near base, outer spine long and slender, inner spine half as long and twice as thick. Clasper long, apical claw short and stout. Basal membranous lobe conical, pilose, bearing near its apex one long, strong spine and two shorter, slender ones. A high conical, basal membrane. Lateral elliptical lobe chitinized, bearing a short, stout club formed by more or less complete fusion of three stout, clubbed spines. Mesosome long and rather stout, with three pairs of leaflets; terminal pair short and flat, the others shorter and very slender. Process of ninth tergite very short, conical.

Larva—Unknown.

Brazil.

This species is allied to the more northerly distributed *apicimacula*. The wing-scales are more inflated, and the mesosomal leaflets much shorter and less numerous, but the apical black wing-spot is present in both. This is presumably not a malaria carrier.

ANOPHELES (ANOPHELES) FLUMINENSIS Root

ANOPHELES (ANOPHELES) FLUMINENSIS Root, Am. Journ. Hyg., vii, 602, 1927.

Female—Unknown.

Male—The type specimen is defective in the body-parts, but evidently does not differ from the general characters of the group. Legs black, speckled with white, the white extensive on the hind tarsi, some of the rings confluent, the articulations and last joint white. Wing-scales large and inflated, especially the black ones conspicuous; three black costal spots with infuscated membrane beneath, no apical spot; the two large costal spots are defined by white scales. Hypopygium (Plate CXXI, Fig. 410): Side-piece conical, longer than wide; two spines near base slender and rather remote; a slender spine at outer third within. Clasper long, attenuated centrally, with short, inserted, stout terminal spine. A high, conical basal membrane. Membranous basal lobe pilose, with one or two rather weak setæ at tip. Lateral elliptical lobe chitinized, with a process of three consolidated, flattened, somewhat club-shaped spines. Mesosome tubular, widened basally, with about five pairs of apical appendages, the outer pairs moderately long and stout, the basal ones narrow and minute.

Larva—Unknown.

Brazil (Itaperuna).

Dr. Root's unique type is before me. The species has the wings of *punctimacula*, the wing-scales somewhat more inflated; but the hypopygium is close to that of *apicimacula*, though differing in detail.

ANOPHELES (ANOPHELES) MACULIPES (Theobald)

ARRIBALZAGIA MACULIPES Theobald, Mon. Culic., iii, 81, 1903.
Arribalzagia maculipes Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 45, 1911.
Anopheles maculipes Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 990, 1917.
Anopheles (Arribalzagia) maculipes Dyar, Ins. Ins. Mens., vi, 147, 1918.

Anopheles (Anopheles) annulipalpis Christophers (in part, not Lynch), Ind. Med. Res. Mem., iii, 34, 1924.
Anopheles (Anopheles) maculipes Dyar, Ins. Ins. Mens., xiii, 1925.
Anopheles (Anopheles) maculipes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 517, 1925.
Anopheles (Arribalzagia) maculipes Boyd, Am. Jn. Hyg., Mon. Sec. No. 5, 35, fig. 5, 1926.

Female—Proboscis moderate, straight, black. Palpi nearly as long as proboscis, shaggy, black, with minute white rings at the articulations and tip of last joint. Occiput black, with erect black scales, those in front white, and a white tuft between the eyes. Mesonotum gray, with a lateral and single posterior round black spot. Abdomen black, with pale hairs, laterally with segmental tufts of ovate black scales with some white ones below. Legs black, finely spotted with white; fore tarsi with broad white bands on the articulations 1 to 2, 2 to 3, and 3 to 4; hind tarsi with the last four joints black, white only at the articulations. Wing-scales narrowly elliptical-lanceolate, black and white, four black spots on costa, basal one small, two large ones with infuscated membrane beneath, the apex with quite a distinct spot from tip to third vein; large costal spots, and on the rest of the wing the black scales distinctly predominate, giving a general dusky appearance.

Male (Plate CXXI, Fig. 411)—Unknown. (See discussion under *apicimacula.*)

Larva—Unknown.

Brazil.

There is no tangible difference between the female of this species and *apicimacula;* but until the male of *maculipes* is known, they can not be considered identical.

ANOPHELES (ANOPHELES) APICIMACULA Dyar and Knab

ANOPHELES APICIMACULA Dyar and Knab, Proc. Biol. Soc. Wash., xix, 136, 1906.
Anopheles apicimacula Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 995, 1917.
Anopheles (Arrabalzagia) apicimacula Dyar, Ins. Ins. Mens., vi, 148, 1918.
Anopheles (Anopheles) apicimacula Root, Am. Journ. Hyg., iii, 275, 1923.
Anopheles apicimacula Bonne, Ned. Tidj. v. Gen., lxviii, 620, 1924.
Anopheles (Anopheles) apicimacula Christophers, Ind. Med. Res. Mem., iii, 34, 1924.
Anopheles apicimacula Root, Am. Journ. Hyg., iv, pl. v, fig. 7, 1924.
Anopheles (Anopheles) maculipes Dyar (not Theobald), Ins. Ins. Mens., xiii, 192, 1925.

Female—Proboscis moderate, shaggy basally, black. Palpi nearly as long as proboscis, shaggy, black, with white scales at the articulations of the joints and at tip of last joint. Occiput black, with erect black scales, those in front white, and a white tuft between the eyes. Mesonotum gray, a black spot on each side and one posteriorly; vestiture of fine, pale hairs. Abdomen black, with pale hairs; laterally posteriorly on the segments are little tufts of elliptical black scales, mixed with a few white ones. Legs black, densely speckled with white; on the hind tarsi the white spots are less scattered and tend to involve both ends of the joints with single spots between, but the marking is variable. Wing-scales rather narrowly ovate-lanceolate, somewhat broader on basal part of wing, black and white; four black spots along costal edge, the basal one small, the fourth apical, the membrane beneath infuscated, the two large spots partly outlined in white; rest of the wing rather evenly mottled with black and white scales.

Male—Coloration of the female. Palpi with the last two joints enlarged, hairy. Hypopygium (Plate CXXII, Fig. 412): Side-piece conical, longer than wide; two rather slender spines near base and a slender one at outer third. Clasper long, rather slender, attenuated, except at base and apex, with small, stout, inserted terminal spine. A high conical basal membrane. Membranous basal lobes pilose, with longish hairs at tip and two or three spines, generally not very stout. Elliptical lateral lobe chitinized, with three overlapping consolidated club-shaped spines. Mesosome moderate, broadly widened at base, sides thickened, with four or five pairs of terminal leaves, the apical one stout, the rest progressively shorter and narrower.

Larva (Plate CXXII, Fig. 412)—Similar to that of *punctimacula*, no differential characters having been pointed out.

Mexico, Central America, Panama, Venezuela, the Guianas, and Trinidad.

True *apicimacula* from Panama have, in the male hypopygium, two or three setæ on the membranous basal lobes which are decidedly weak and small, while the mesosome spreads out broadly basally with thick walls. A male from Venezuela which agrees in markings with *apicimacula* or *maculipes*, however, has two very stout and long and one weaker but equally long seta at the tip of the membranous lobes, the mesosome being tubular and not widened as much nor with such conspicuously thick walls, though the leaflets are much the same. Two males from Trinidad possess the characters of the Venezuelan race, and it will probably be found that *punctimacula* is confined to Mexico, Central America, and Panama, and that the specimens here cited from Venezuela, the Guianas, and Trinidad belong to *maculipes*, with the genitalic differences cited.

ANOPHELES (ANOPHELES) PSEUDOMACULIPES (Peryassú)

ARRIBALZAGIA PSEUDOMACULIPES Perryassú, Os Culic. do Braz., 108, 1908.

Arribalzagia pseudomaculipes Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 46, 1911.

Anopheles (Arribalzagia) pseudomaculipes Dyar, Ins. Ins. Mens., vi, 148, 1918.

Anopheles pseudomaculipes Root, Am. Journ. Hyg., iv, 462, Pl. v, fig. 8, 1924.

Anopheles (Anopheles) pseudomaculipes Christophers, Ind. Med. Res. Mem., iii, 34, 1924.

Anopheles (Anopheles) pseudomaculipes Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 527, 1925.

Anopheles (Arribalzagia) pseudomaculipes Boyd, Am. Journ. Hyg., Mon. Sec. No. 5, 38, fig. 6, 1926.

Female—Proboscis black. Palpi nearly as long as proboscis, shaggy, black, with white rings at the articulations of the joints and the tip of the last joint white, the white rings wider than usual. Occiput black, with erect black scales, those toward the front white and a white tuft between the eyes. Mesonotum gray, with a black spot on each side and one behind, with pale hairs. Abdomen black, hairy, the segments laterally with little tufts of elliptical black scales. Legs black, speckled with white; fore tarsi with broader white rings at the articulations 1 to 2, 2 to 3, and 3 to 4; hind tarsi with broader white rings at the articulations, the central areas also with a few white spots, the last joint black. Wings with lanceolate scales predominating, a few inflated ones toward the base of the wing only, black and white; three costal spots, not distinctly margined by white scales; no concrete apical patch; bases of forks of fourth and fifth veins white, a

rather large black patch at base of fork of fourth, otherwise the black patches rather evenly distributed, but the black scales look sparse through center of wing.

Male—Coloration of the female. Hypopygium (Plate CXXII, Fig. 413): Side-piece conical, one and three-fourths as long as wide; two spines near base, outer long and slender, inner much shorter and thicker; internal spine long, slender, curved. Clasper long; apical claw short and stout. A high, conical basal membrane. Membranous basal lobe conical, pilose, with one long, stout spine and two somewhat shorter, slender spines. Lateral elliptical lobes chitinized, bearing a club of three partly fused, flattened spines, rounded at tip. Mesosome rather stout, with two pairs of leaflets, the terminal pair long, flattened, pointed, the other pair less than half as long and very slender.

Larva—Unknown.

Brazil.

This species seems very close to *punctimacula,* but the leaflets on the tip of the mesosome of the male hypopygium differ. It is presumably not a malaria carrier.

Subgenus KERTESZIA Theobald

ANOPHELES (KERTESZIA) BOLIVIENSIS Theobald

KERTESZIA BOLIVIENSIS Theobald, Ann. Mus. Nat. Hung., iii, 66, 1905.
Kerteszia boliviensis Theobald, Mon. Culic., vi, 118, 1907.
Anopheles boliviensis Dyar and Knab, Ins. Ins. Mens., v, 40, 1917.
Anopheles (Kerteszia) boliviensis Dyar, Ins. Ins. Mens., vi, 148, 1918.
Anopheles (Nyssorhynchus) boliviensis, group *Kerteszia,* Christophers, Cat. Anoph., Ind. Med. Res. Mem., iii, 42, 1924.
Anopheles (Anopheles) boliviensis Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 533, 1925.

Female—Proboscis deep brown. Palpi black, with narrow yellow bands at the articulations, and tip yellow. Occiput brown, with large, upright, forked scales, black except a small median wedge-shaped spot in front and a few yellow, narrow, curved ones projecting in front. Mesonotum ashy gray, with two straight, parallel, median brown lines and a curved brown, broader line on each side, covered scantily with golden hair-like curved scales, ending bluntly, some elliptical especially on front of mesonotum. Abdomen deep brown, clothed with rather irregular large, black scales and with dark brown marginal bristles. Legs dark brown, femora with slightly white apices; fore tarsi with apical creamy areas on first to third joints, last two dark; mid tarsi similar, but the pale markings less developed; hind tarsi with the apex of the first joint pale above and traces of the other two pale spots, the greater part of the second joint white (a minute black base), the rest dark brown. Wings with the costal edge dark, with four yellow spots, three of them cutting two veins, the subapical one on first vein only; otherwise dark-scaled save a pale area along most of third vein centrally and several other small, pale spots on cross-veins, base of fork, and middle of fifth and basal third of sixth.

Male—Unknown.

Larva—Unknown.

Bolivia.

I do not know this species in nature, and follow Christophers in placing it in this subsection, but if this is right, Theobald's mention of scales on the abdomen must be due wholly to an error of observation, for no trace of scales exists there in the other members of the group.

ANOPHELES (KERTESZIA) CRUZII Dyar and Knab

ANOPHELES LUTZII Theobald (not Cruz), Mon. Culic., i, 177, 1901.
Nyssorhynchus lutzi Blanchard, Les Moust., 211, 1905.
ANOPHELES CRUZII Dyar and Knab, Proc. U. S. Nat. Mus., xxxv, 53, 1908.
Nyssorhynchus lutzi Surcouf and Gonzales Rincones, Ess. Dipt. Vul. Venez., 55, 1911.
ANOPHELES NEIVAI Howard, Dyar, and Knab, (not *neivæ* Cruz), Mosq. No. and Cent. Am. and W. I., iv, 987, 1917.
ANOPHELES HYLEPHILUS Dyar and Knab, Ins. Ins. Mens., v, 38, 1917.
Anopheles neivai Dyar and Knab, Ins. Ins. Mens., v, 40, 1917.
Kerteszia boliviensis Dyar and Knab (not Theobald), Ins. Ins. Mens., vi, 140, 1918.
Anopheles (Dendropœdium) cruzii, hylephilus, and *neivai* Dyar, Ins. Ins. Mens., vi, 146, 1918.
Anopheles neivai Root, Am. Journ. Hyg., ii, 391, 1922.
Anopheles (Nyssorhynchus) neivai Root, Am. Journ. Hyg., iii, 277, 1923.
Anopheles (Nyssorhynchus) bellator var. *cruzii,* var. *neivai,* and var. *hylephilus* Christophers, Ind. Med. Res. Mem., iii, 42, 1924.
Anopheles cruzii Dyar, Ins. Ins. Mens., xiii, 31, 1925.
Anopheles bellator Davis (not Dyar and Knab), Am. Journ. Hyg., vi, 119, 1925.
Anopheles (Dendropœdium) cruzii Dyar, Ins. Ins. Mens. xiii, 26, 1925.
Anopheles (Kerteszia) cruzii Dyar, Ins. Ins. Mens., xiii, 193, 1925.
Anopheles (Dendropœdium) cruzii Boyd, Am. Journ. Hyg., Mon. Sec. No. 5, 41, fig. 9, 1926.
Anopheles cruzii Root, in Boyd, Am. Journ. Hyg., Mon. Sec. No. 5, 52, 1926.

Female—Proboscis moderate, black. Palpi moderately thickened, with scales, smooth, black; tip and penultimate articulation narrowly marked with yellowish scales. Occiput black, with erect, forked, black scales, some toward the front white, thickened or ovate; a tuft of white hairs between the eyes. Mesonotum gray, with two broad black impressed lines running back three-fourths; a broader line on each side, somewhat curved; vestiture of short yellowish hairs, on the anterior margin short thickened scale-like white ones. Abdomen black, with many brownish hairs. Legs black; femora white-lined below and with an oblique white subapical mark; tibiæ white-lined below, the hind pair with a basal white ring; fore tarsi white, the first joint with two black rings, the rest black on basal third; mid tarsi with the first joint black above, with narrow apical white ring, remaining joints with more than the apical half white, bases black; hind tarsi, first joint white at base, a black ring, then white with outer edge irregular, short above, long below, then black and a broad white tip, other joints with nearly apical two-thirds white, base black. Wings with the costal edge dark, cut by four pale yellow spots cutting two veins, variable in development; other scales black, a small yellow spot at base of third vein, fork of fifth, and near base of fifth. Third vein either largely pale-scaled centrally *(cruzii)* or entirely dark *(neivai)*.

Male—Coloration of the female. Palpi with the last two joints moderately thickened. Hypopygium (Plate CXXII, Fig. 414): Side-piece long and truncate-tipped, three times as long as wide; a long, strong spine from base, nearly as long as side-piece; below the middle on inner side a stout spine, blunt-tipped, at outer third inwardly two long, strong spines, somewhat sinuate. Clasper long and slender, a little thickened at base, with very small inserted terminal spine. A high, conical, basal membrane. Elliptical basal lobes broad, bearing a long spine and four long, sinuate filaments. Mesosome long, tubular, simple.

Larva (Plate CXXII, Fig. 414)—Head rounded, longer than wide, conically produced in front; antennæ moderate, finely spinulate within, a short,

simple hair near base; head-hairs simple, anteantennal hairs long, tufted outwardly. Abdomen with six pairs of small dorsal float-hairs, the elements ligulate, with straight truncate tips. Lateral comb of the eighth segment with the teeth long, uniform, rather dense. Anal segment with a rather large dorsal plate, spinulated behind; dorsal tuft of two long hairs on each side, with short dendritic branches; a single short lateral hair; ventral brush of long hairs rather shortly feathered, radially divided outwardly.

Mexico, Costa Rica, Panama, Ecuador, Peru, Surinam, Brazil.

The larvæ live in the water in the leaf-bases of Bromeliaceæ. The adult does not carry malaria, early indications to this effect (Lutz) having been negatived by later research (Davis).

ANOPHELES (KERTESZIA) BELLATOR Dyar and Knab

ANOPHELES BELLATOR Dyar and Knab, Proc. Biol. Soc. Wash., xix, 160, 1906.
Myzomyia bellator Theobald, Mon. Culic., v, 86, 1910.
Anopheles bellator Howard, Dyar, and Knab, Mosq. No. and Cent. Am. and W. I., iv, 985, 1917.
Anopheles bellator Dyar and Knab, Ins. Ins. Mens., v, 40, 1917.
Anopheles (Dendropœdium) bellator Dyar, Ins. Ins. Mens., vi, 145, 1918.
Anopheles bellator Dyar, Ins. Ins. Mens., xi, 72, 1923.
Anopheles (Nyssorhynchus) bellator Root, Am. Journ. Hyg., iii, 278, 1923.
Anopheles (Nyssorhynchus) bellator Christophers, Ind. Med. Res. Mem., iii, 42, 1924.
Anopheles bellator Bonne, Ned. Tidschr. v. Gen., lxviii, 1924.
Anopheles (Dendropœdium) bellator and race BROMELICOLA Dyar, Ins. Ins. Mens., xiii, 27, 1925.
Anopheles (Anopheles) bellator Bonne and Bonne-Wepster, Mosq. of Surinam, Royal Colonial Inst. of Amsterdam (Holland), No. xxi, Afd. Trop. Hyg. No. 13, 504, 1925.

Female—Proboscis moderate, black. Palpi moderately thickened, with scales, smooth, black; tip and penultimate articulation narrowly marked with yellowish scales. Occiput black, with erect forked black scales, some toward the front white, thickened or ovate; a tuft of white hairs between the eyes. Mesonotum gray, with two broad black impressed lines running back three-fourths; a broader line on each side, somewhat curved; vestiture of short yellowish hairs, on the anterior margin short, thickened, scale-like white ones. Abdomen black, with many brownish hairs. Legs black; femora white-lined below and with an oblique white subapical mark; tibiæ white-lined below, the hind pair with a basal white ring; fore tarsi white, the first joint with two black rings, the rest black on basal third; mid-tarsi with the first joint black above, with narrow apical white ring, remaining joints with more than the apical half white, bases black; hind tarsi, first joint white at base, a black ring, then white, with outer edge irregular, short above, long below, then black, and a broad white tip, other joints with apical fourth white, base black, fifth joint black. Wings with the costal edge dark, cut by four pale yellow spots cutting two veins, variable in development; other scales black, a small yellow spot at base of third vein, fork of fifth and near base of fifth. Third vein either largely pale-scaled centrally *(bellator)* or entirely dark *(bromelicola)*.

Male—Coloration of the female. Palpi with the last two joints moderately thickened. Hypopygium: Side-piece long and truncate-tipped, three times as long as wide; a long, strong spine from base, nearly as long as side-piece; below the middle on inner side a stout spine blunt-tipped, at outer third inwardly two long strong spines, somewhat sinuate. Clasper long and slender, a little thickened at base, with very small inserted

terminal spine. A high conical basal membrane. Elliptical basal lobes broad, bearing a long spine and four long sinuate filaments. Mesosome long, tubular, simple.

Larva—Head rounded, longer than wide, conically produced in front; antennæ moderate, finely spinulate within, a short, simple hair near base; head-hairs simple, anteantennal hairs long, tufted outwardly. Abdomen with six pairs of small dorsal float-hairs, the elements ligulate, with straight truncate tips. Lateral comb of the eighth segment with the teeth long, uniform, rather dense. Anal segment with a rather large dorsal plate, spinulated behind; dorsal tuft of two long hairs on each side, with short dendritic branches; a single short lateral hair; ventral brush of long hairs rather shortly feathered, radially divided outwardly.

Trinidad, Venezuela.

This is probably only a variety of *cruzii,* with the white markings of the hind-tarsi reduced. The larvæ live in the water in the leaf-bases of Bromeliaceæ.

(Rio Tapajós, Brazil)

KEY TO FORDLANDIA SPECIES OF ANOPHELES: By Lourenço, Aug 18, 1932

1- Articulations of hind tarsi narrowly white and involving both joints .....mattogrossensis
Third and fourth hind tarsals entirely white.....2

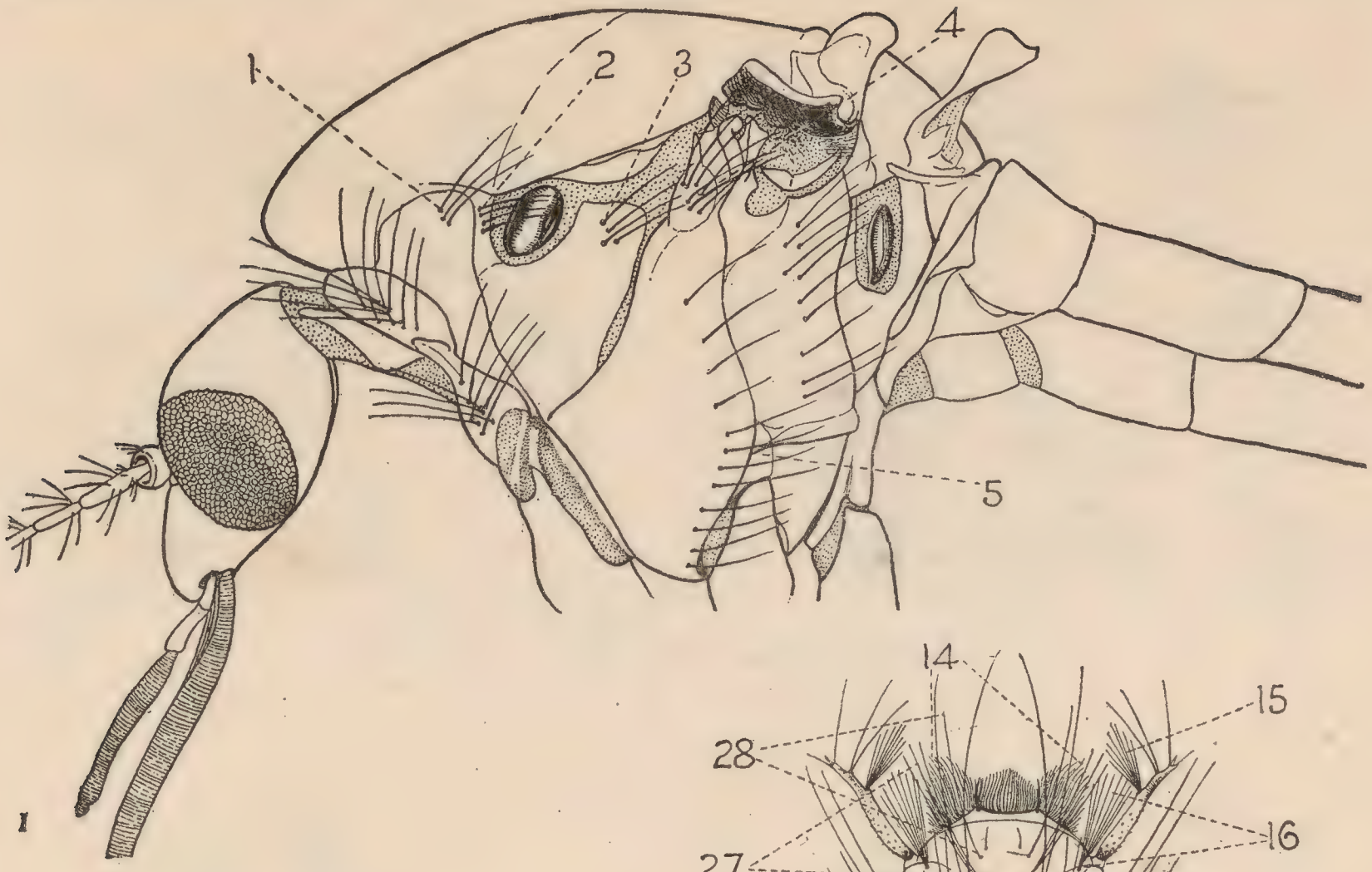
2- Fifth hind tarsal with black ring at base.....3
Fifth hind tarsal without black ring.....5

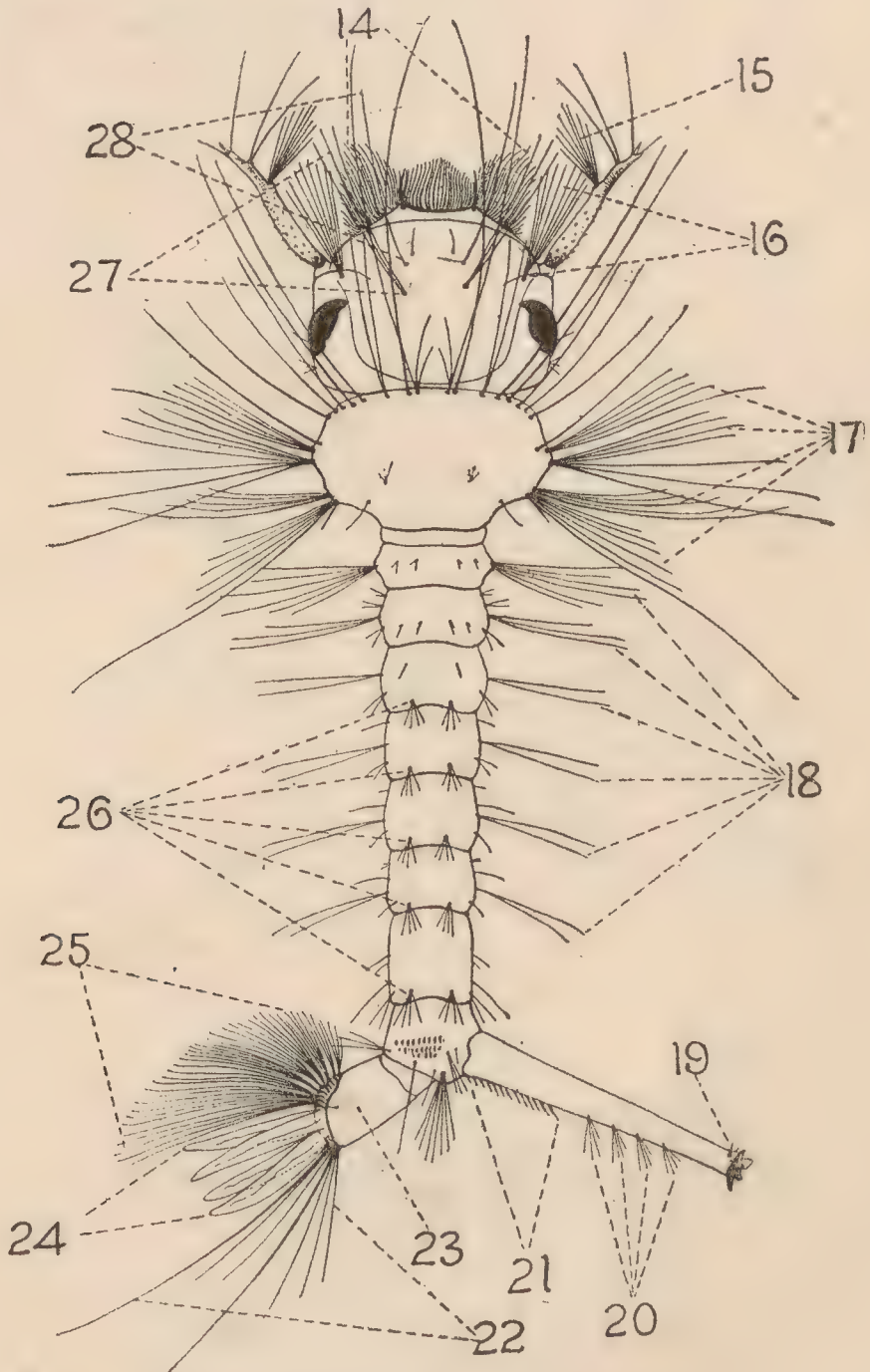
3- Fourth fore tarsal lacking white ring at tip, second hind tarsal at most scarcely over 1/3 & usually not over 1/4 black...gorgasi 166 Spmo
Fourth fore tarsal tipped with white ring, second hind tarsal at least well over 1/3 black.....4

4- Two largest costal black spots well separate .....albimanus } 100
Two largest costal black spots subconfluent.....bachmanni

5- Fourth fore tarsal tipped with white ring, second hind tarsal more or less 1/2 black.....albitarsis 95
Fourth fore tarsal lacking white ring at tip.....6

6- Second hind tarsal much less than 1/2 black, two largest costal black spots well separated.....argyritarsis 261
Second hind tarsal more or less 1/2 black, two largest costal black spots separated or more or less confluent.....darlingi 75





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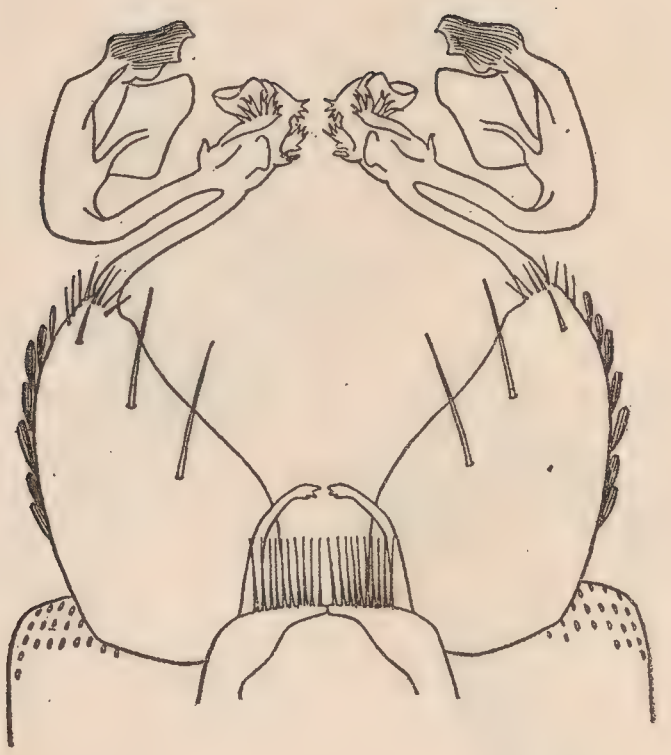
3

1. Diagram of lateral view of thorax of mosquito
   1. Pronotal setæ
   2. Spiracular setæ
   3. Postspiracular setæ
   4. Prealar setæ
   5. Sternopleural setæ
2. Diagram of male hypopygium (*Aëdes*)
   6. Clasper
   7. Apical lobe of side-piece
   8. Side-piece
   9. Claspette
   10. Tenth sternites
   11. Mesosome
   12. Ninth tergites
   13. Basal lobe of side-piece
3. Diagram of mosquito larva (*Culex*)
   14. Mouth-brushes
   15. Antenna
   16. Anteantennal tuft
   17. Thoracic hair-tufts
   18. Lateral abdominal hairs
   19. Air-tube
   20. Hair-tufts of tube
   21. Pecten of tube
   22. Dorsal anal tuft
   23. Anal segment
   24. Anal gills
   25. Ventral brush of anal segment
   26. Subdorsal abdominal tufts
   27. Upper head-hair
   28. Lower head-hair

4



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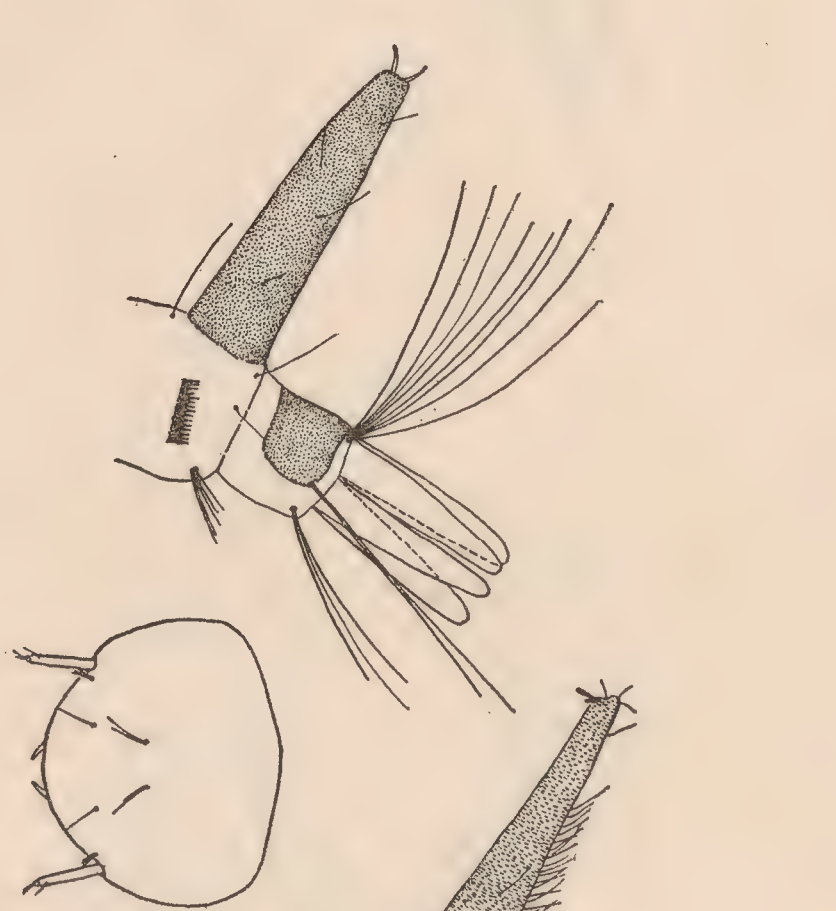

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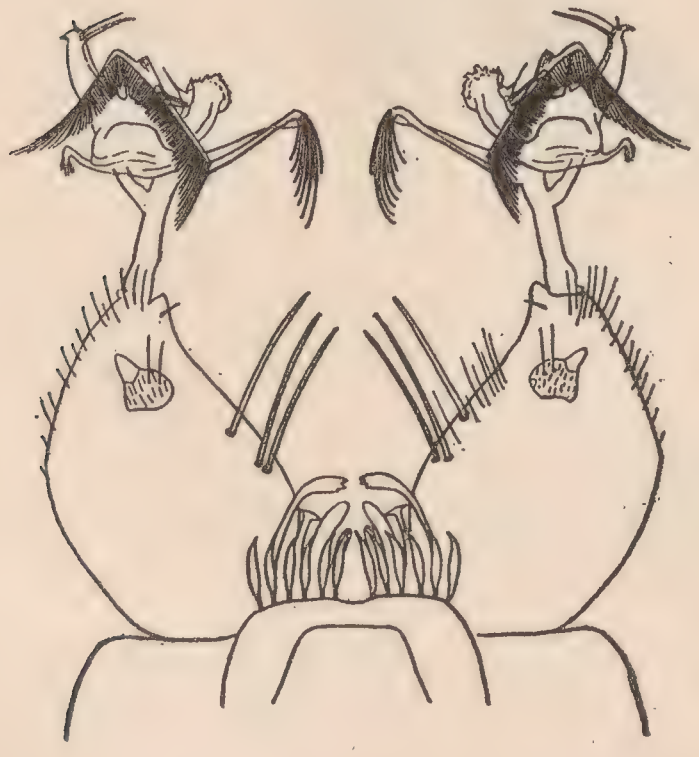

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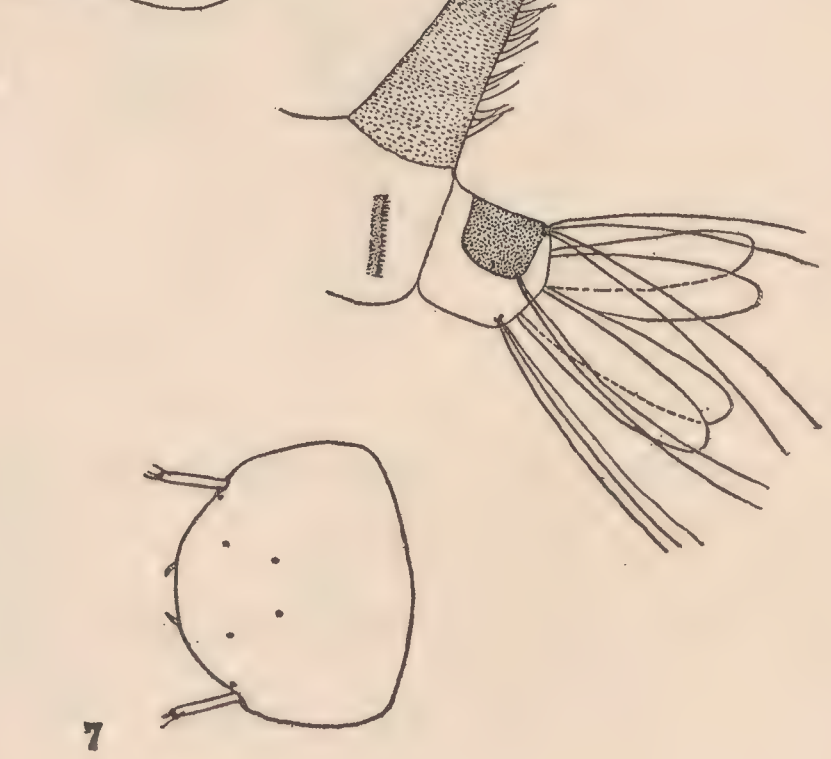
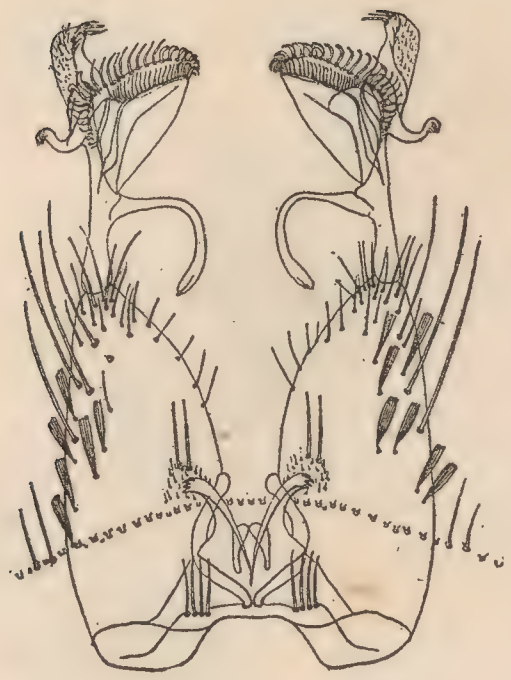


7

4. *Sabethes cyaneus* Fab., male hypopygium
5. *Sabethes albiprivus* Theob., male hypopygium
6. *Sabethes bipartipes* D. and K., male hypopygium and larva
7. *Sabethoides chloropterus* Humb., male hypopygium and larva



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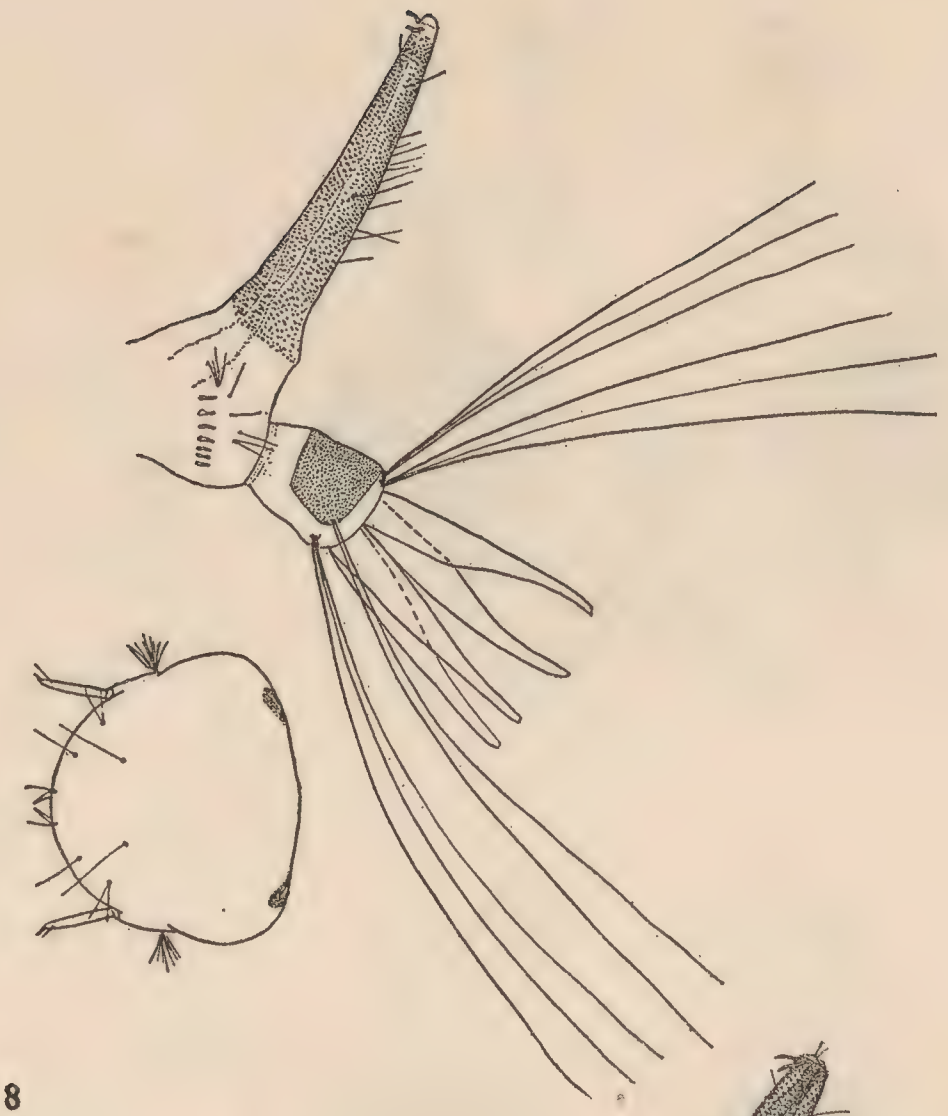

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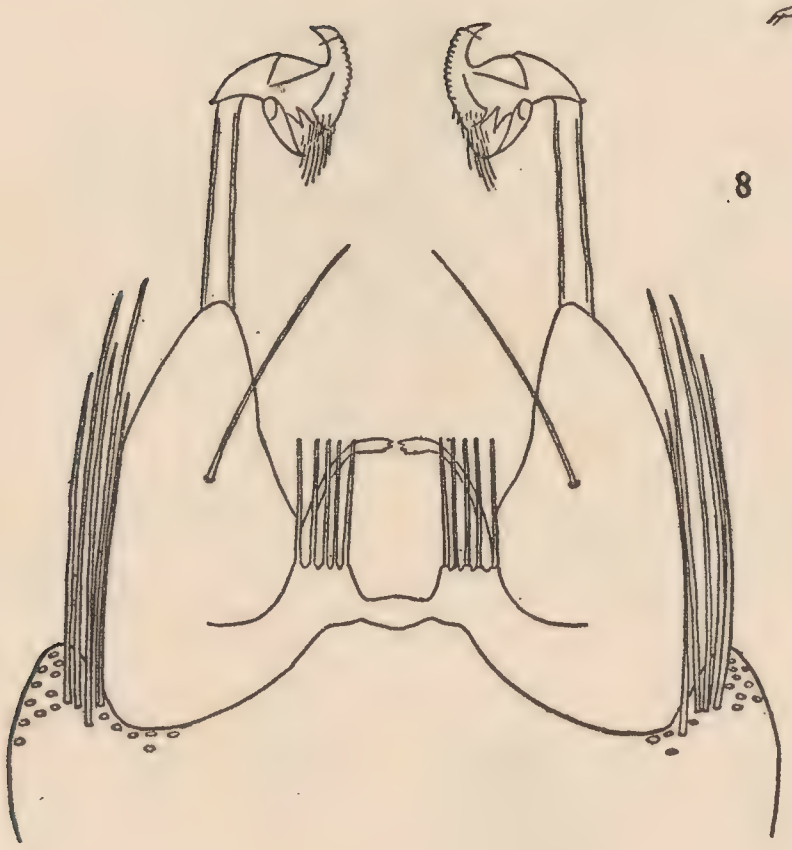

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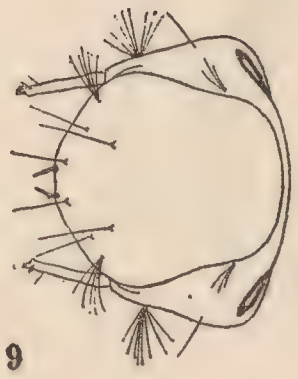

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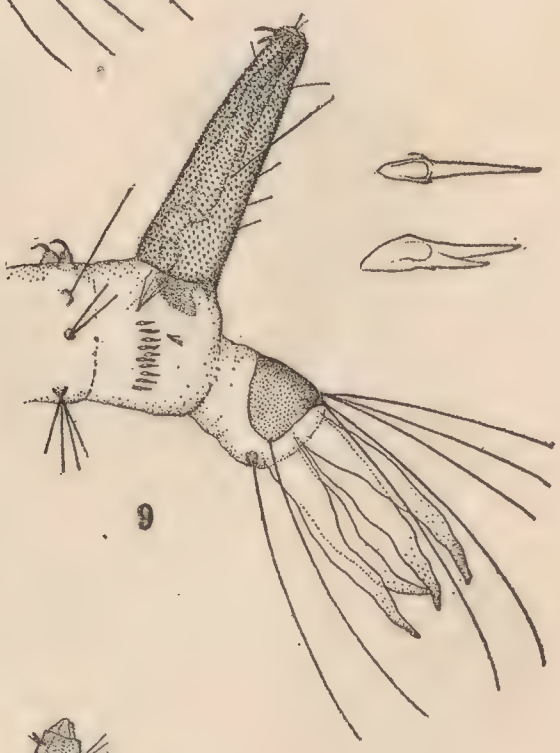

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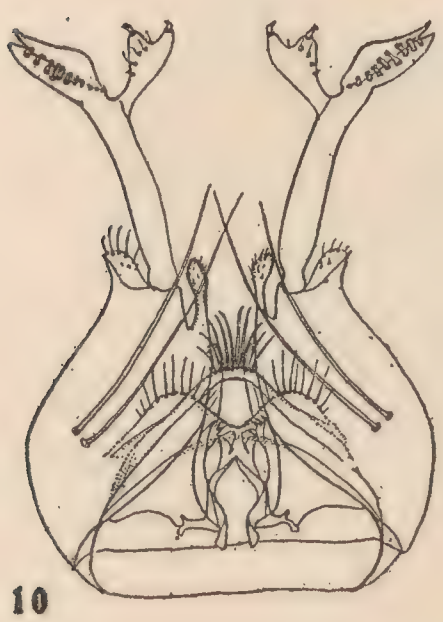

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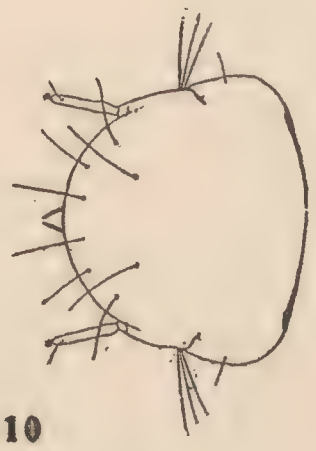

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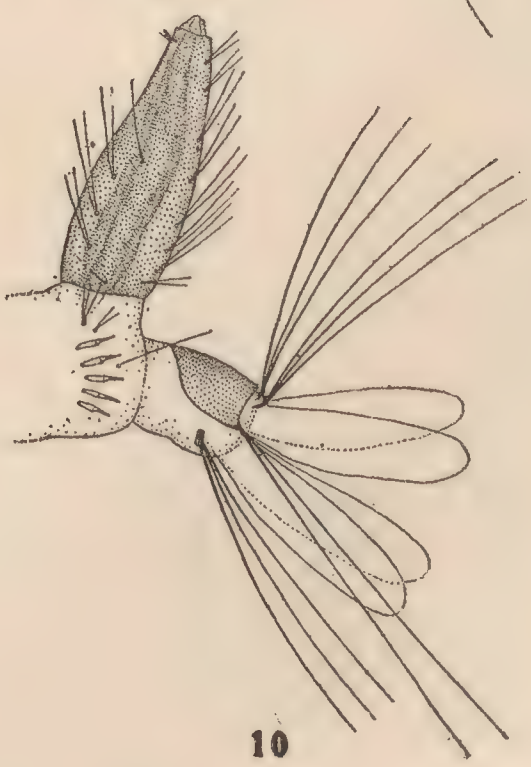

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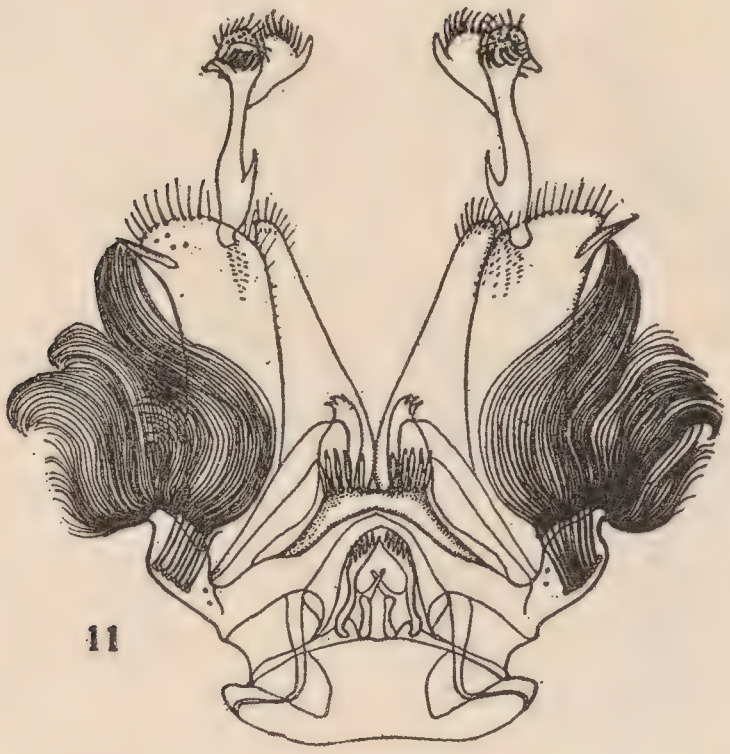
8. *Sabethoides undosus* Coq., male hypopygium and larva.
9. *Sabethoides aurescens* Theob., male hypopygium and larva
10. *Limatus durhamii* Theob., male hypopygium and larva



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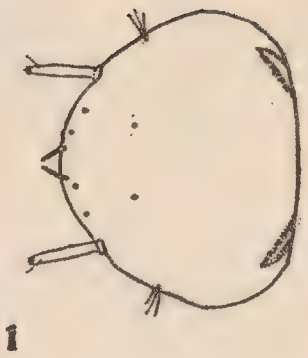

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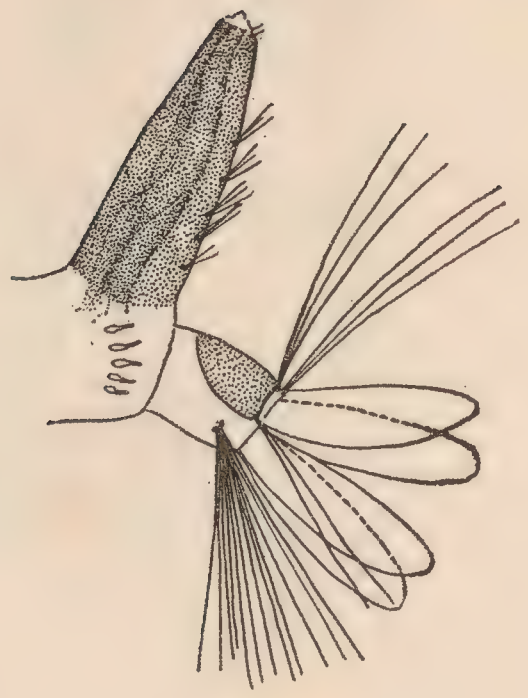

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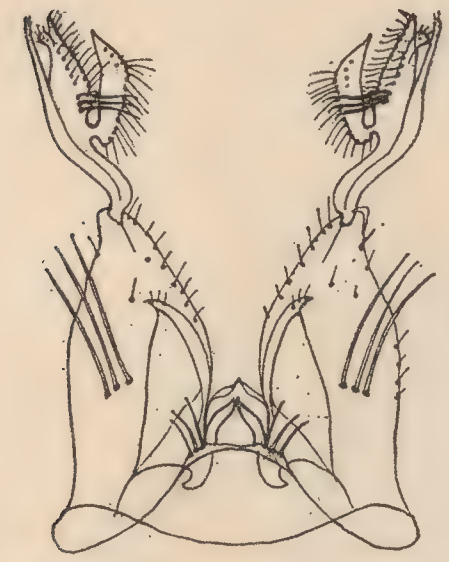
11. *Limatus asulleptus* Theob., male hypopygium and larva
12. *Limatus hoffmanni* Root, male hypopygium and larva
13. *Wyeomyia smithii* Coq., male hypopygium and larva



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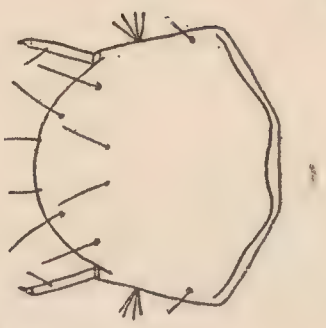

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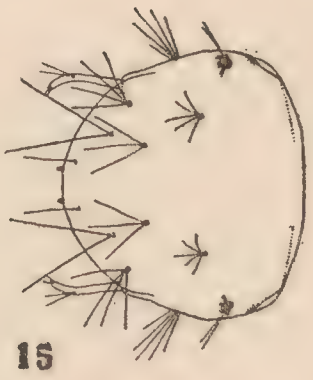
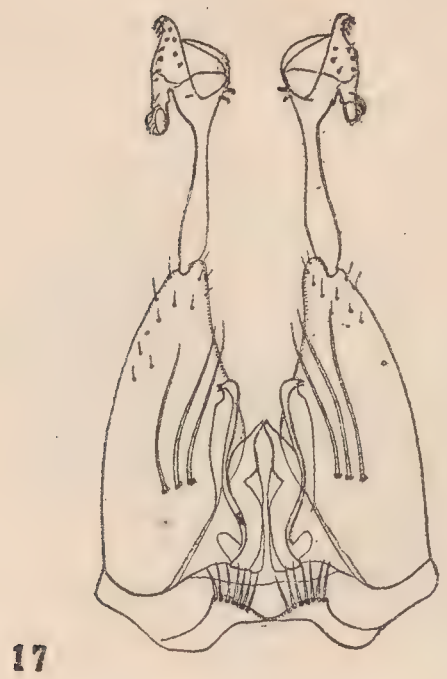


16

14. *Wyeomyia vanduzeei* D. and K., male hypopygium and larva
15. *Wyeomyia celænocephala* D. and K., male hypopygium and larva
16. *Wyeomyia longirostris* Theob., male hypopygium



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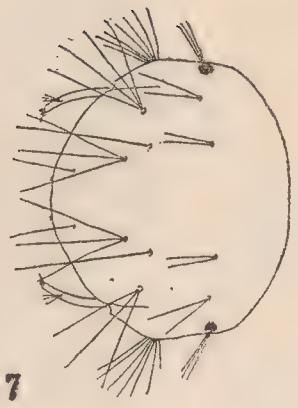

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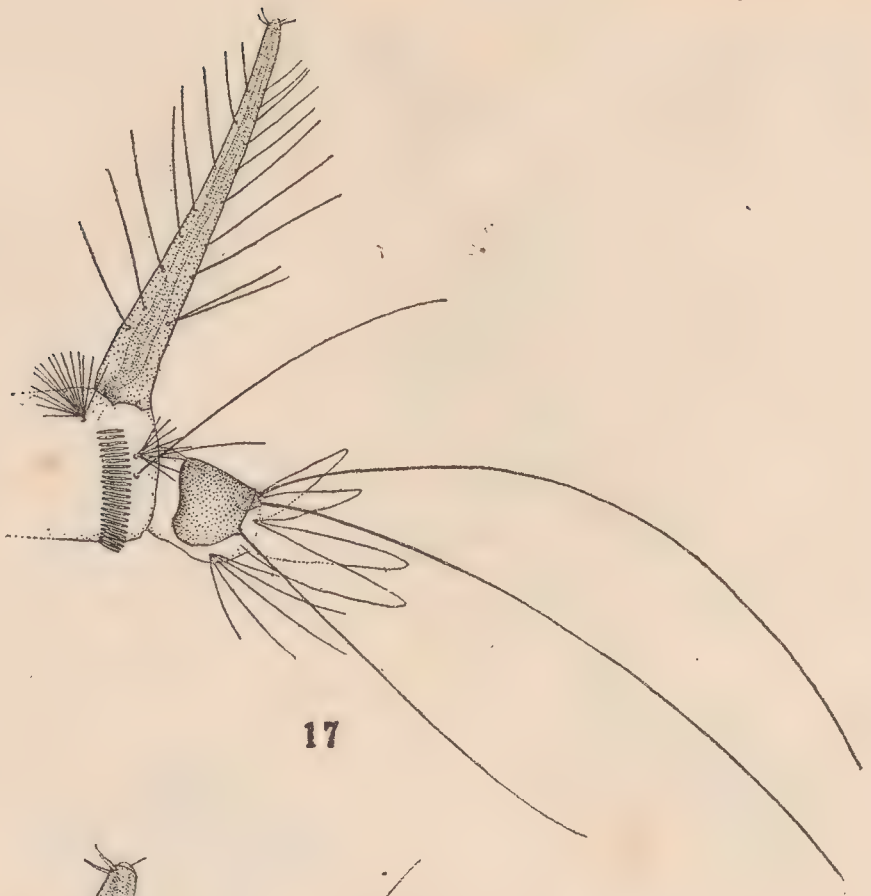

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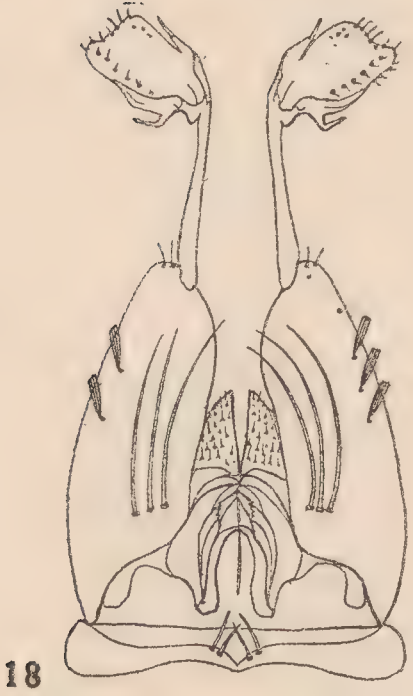

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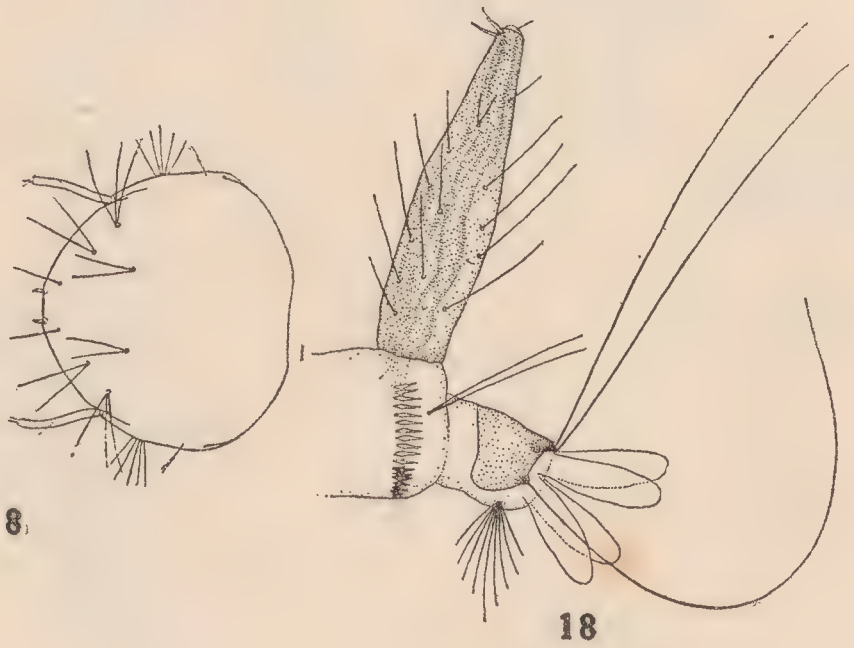

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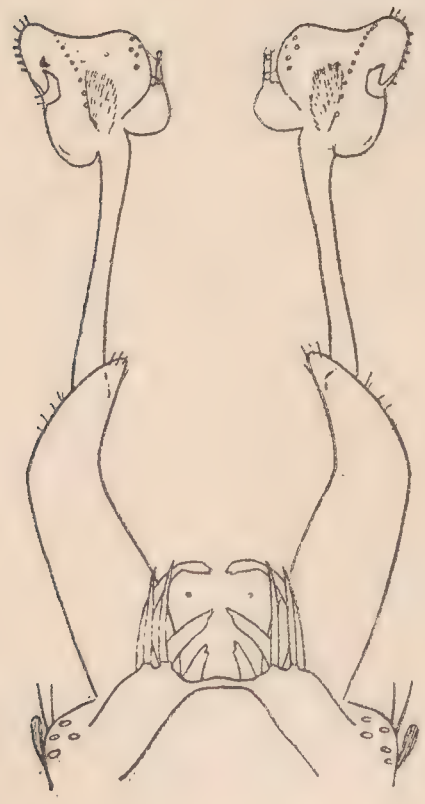

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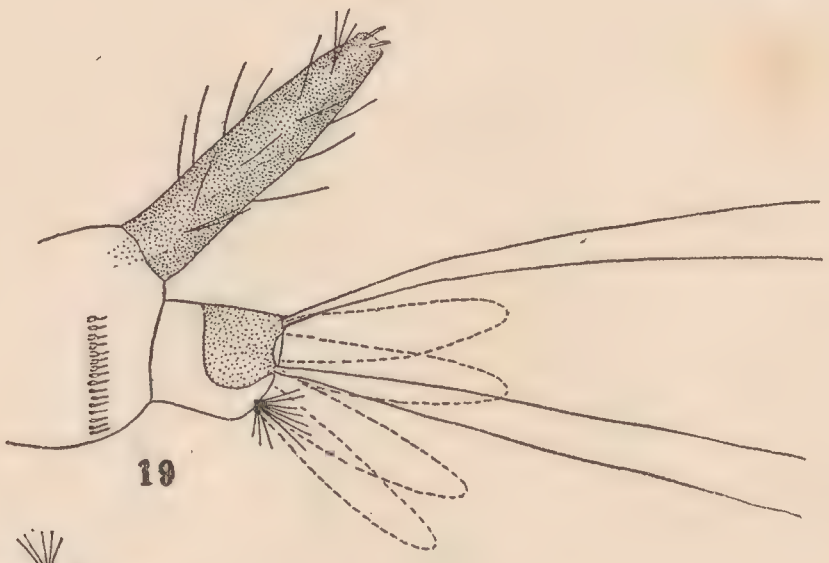

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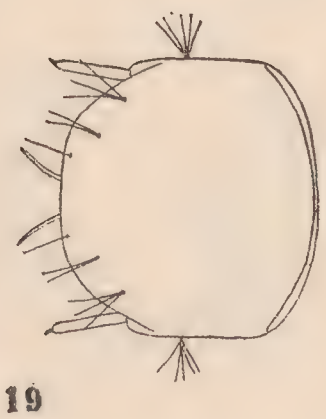
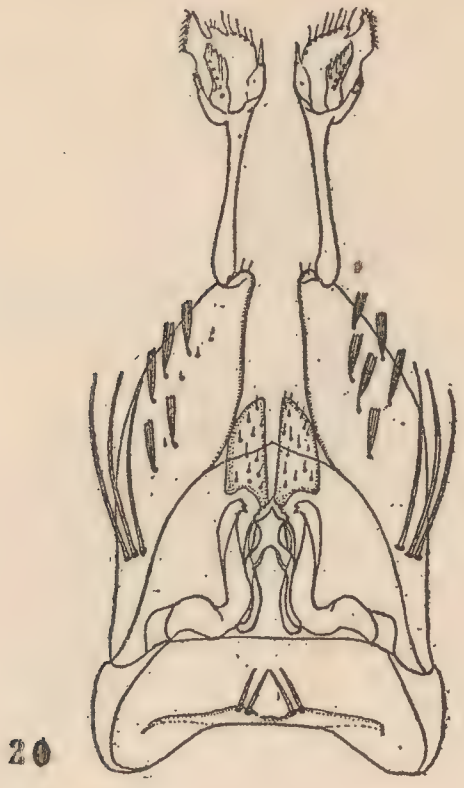
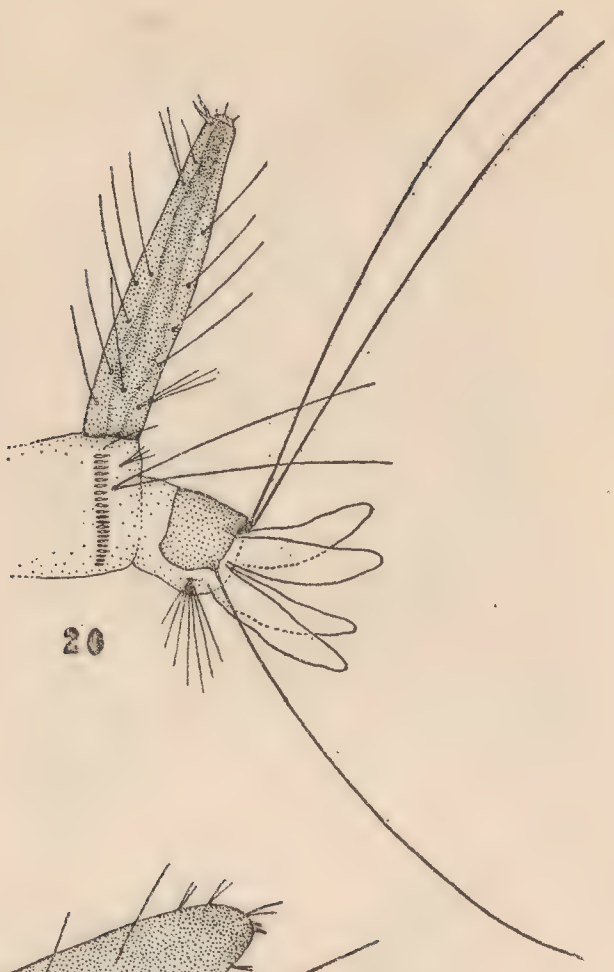
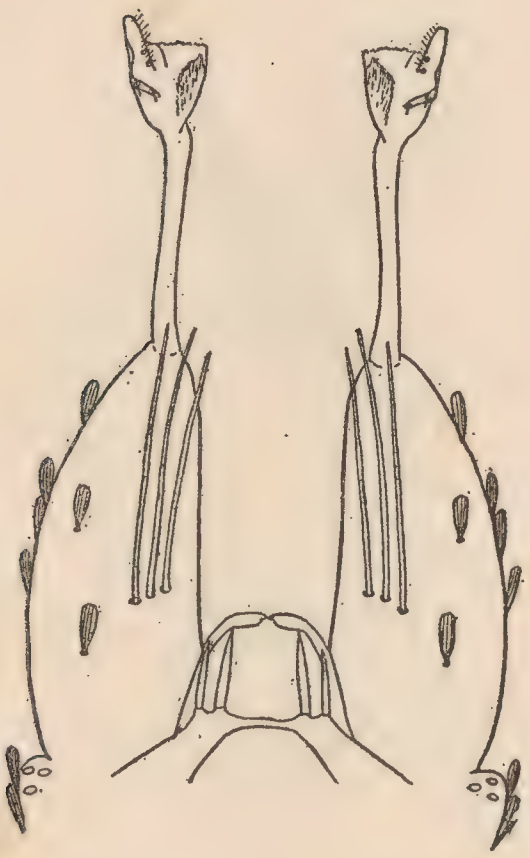


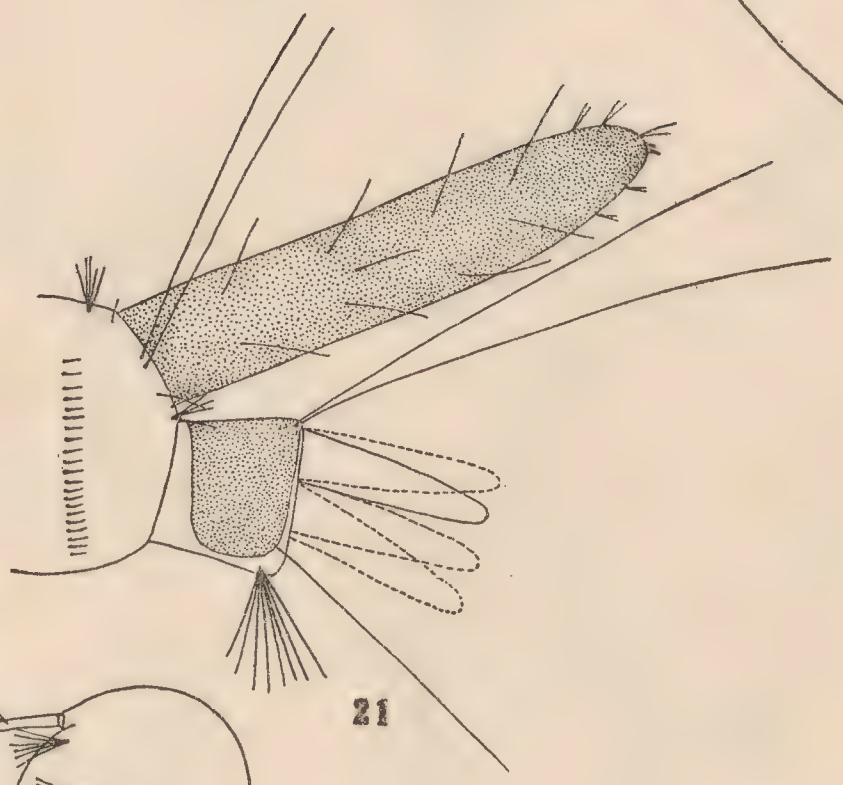
19

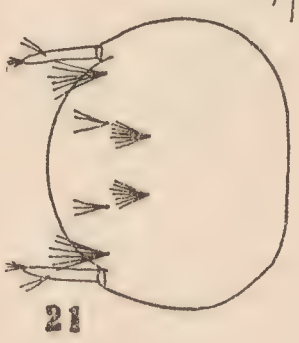
17. *Wyeomyia abebela* D. and K., male hypopygium and larva
18. *Wyeomyia scotinomus* D. and K., male hypopygium and larva
19. *Wyeomyia camptocomma* Dyar, male hypopygium and larva

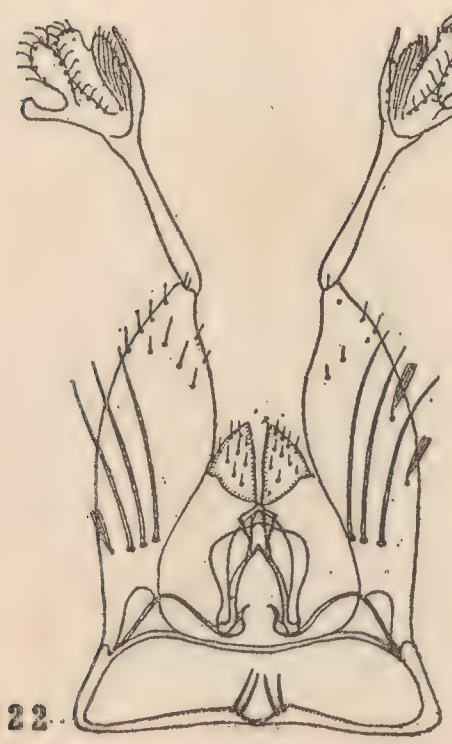


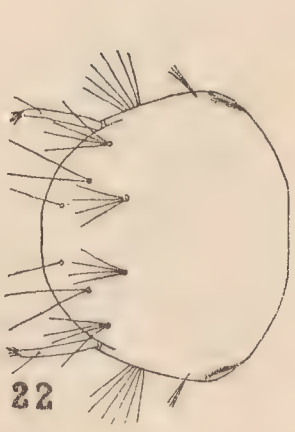


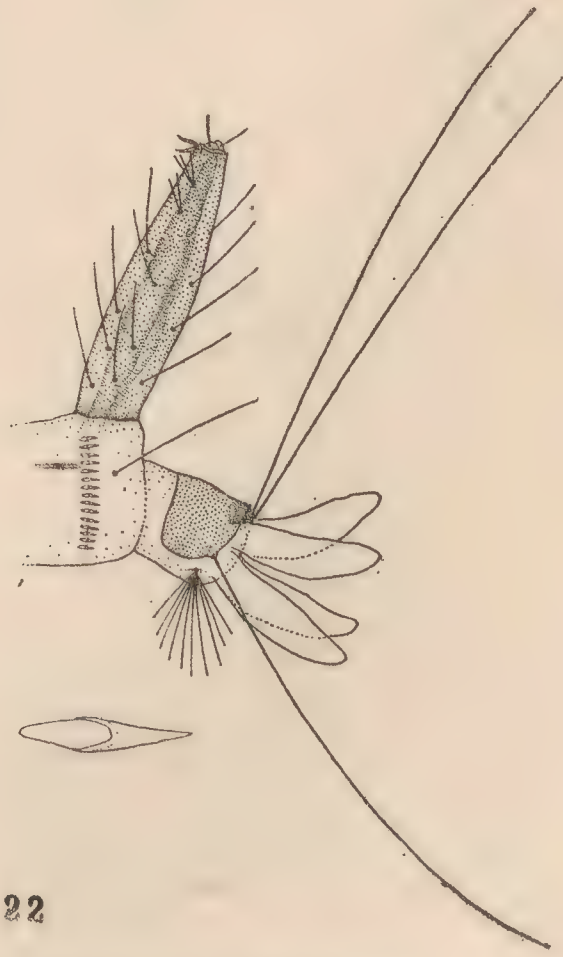




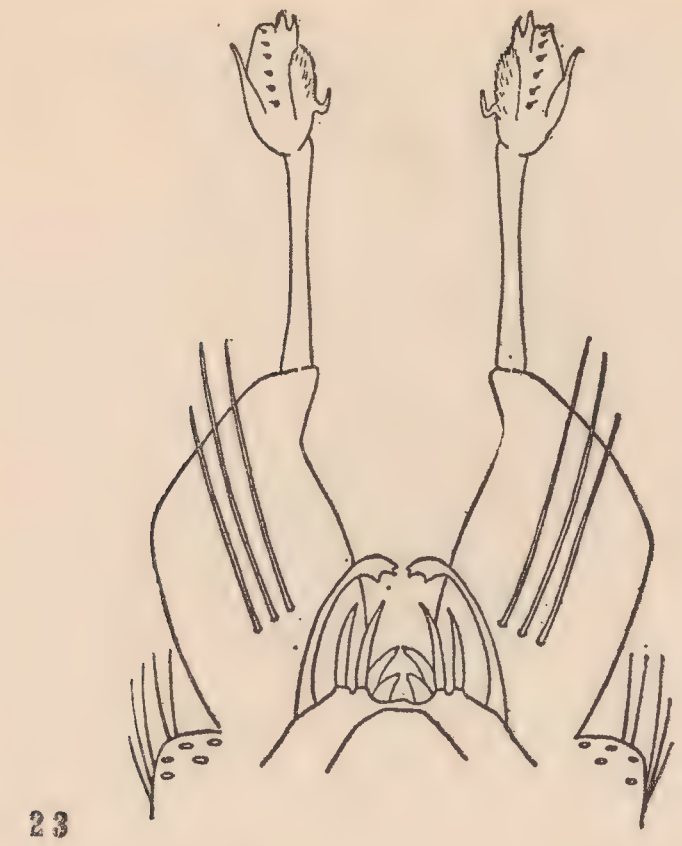


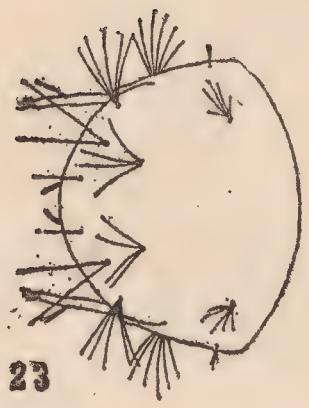


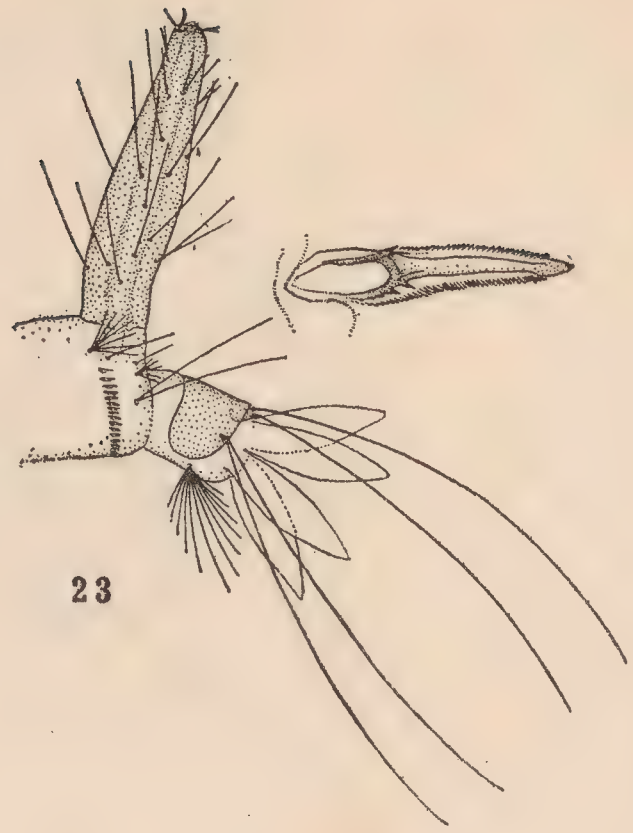


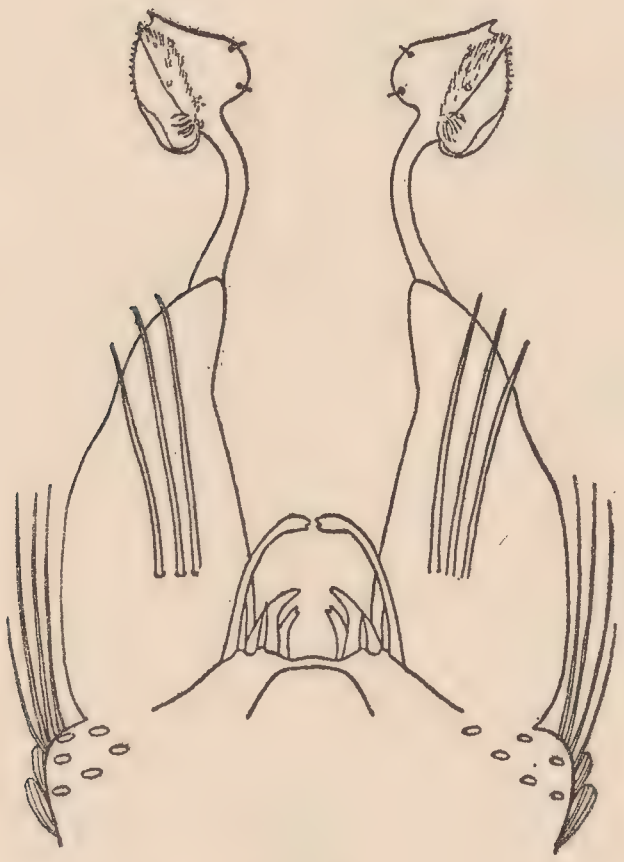


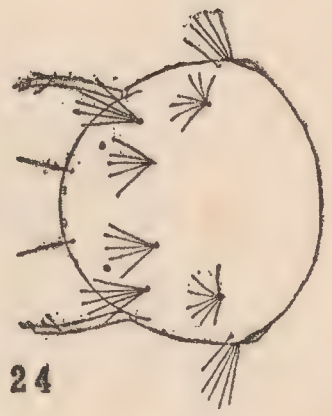
20. *Wyeomyia quasiluteoventralis* Theob., male hypopygium and larva
21. *Wyeomyia oblita* Theob., male hypopygium and larva
22. *Wyeomyia mitchellii* Theob., male hypopygium and larva

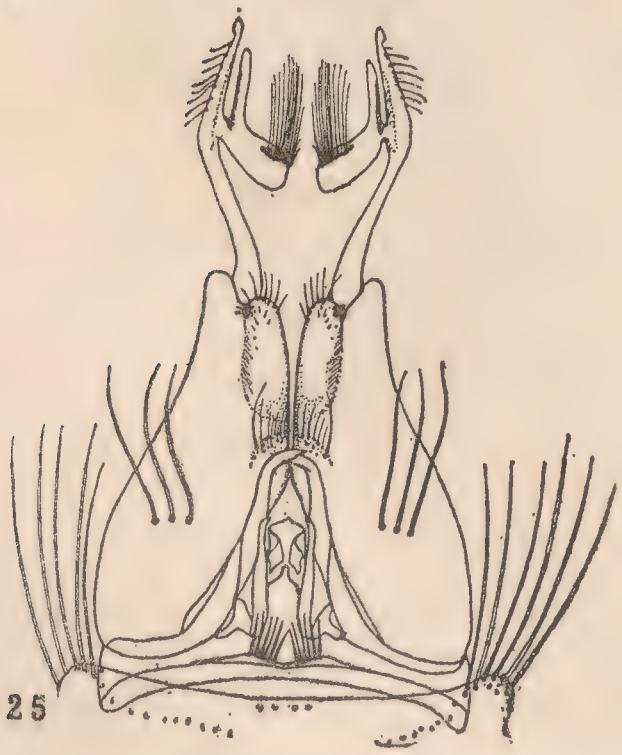


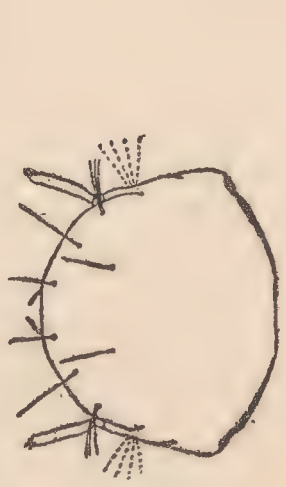


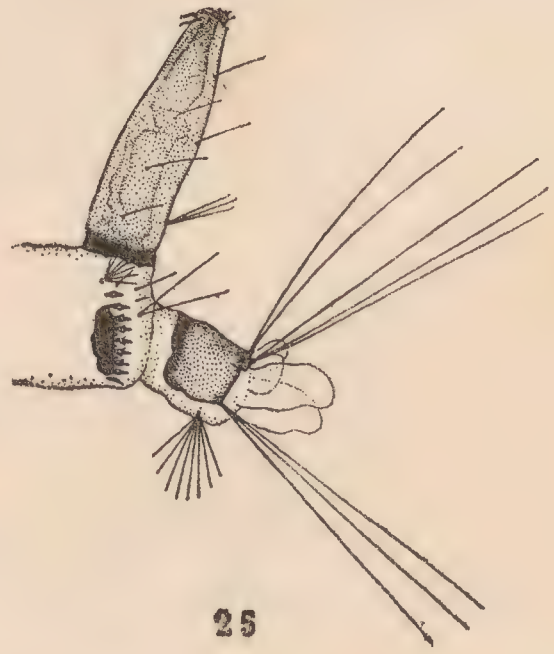






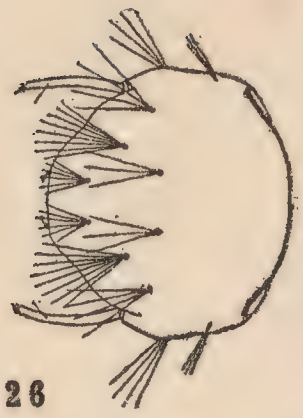






23. *Wyeomyia guatemala* D. and K., male hypopygium and larva
24. *Wyeomyia simmsi* D. and K., male hypopygium and larva
25. *Wyeomyia bromeliarum* D. and K., male hypopygium and larva

26



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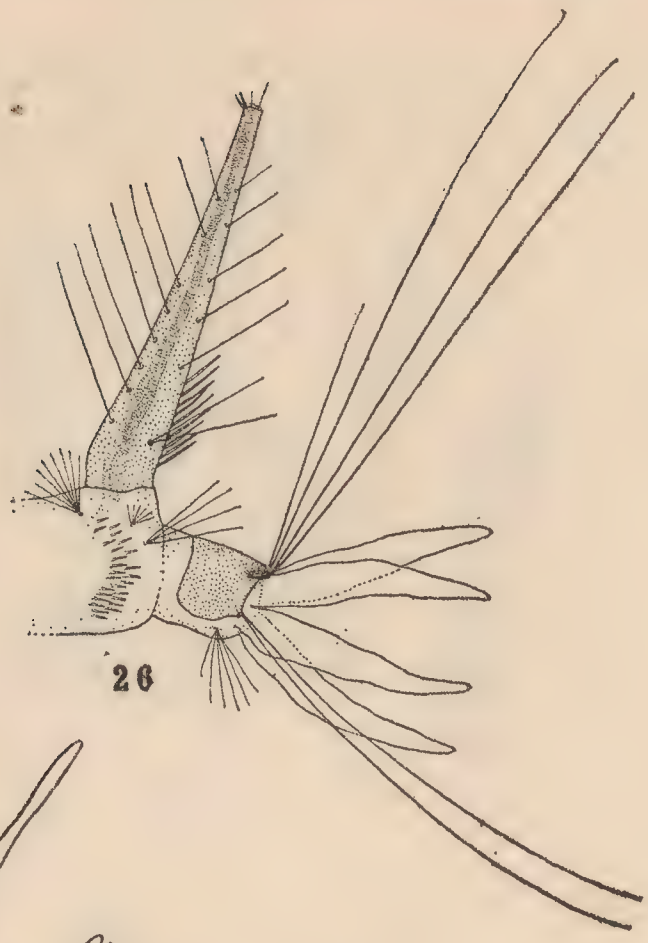

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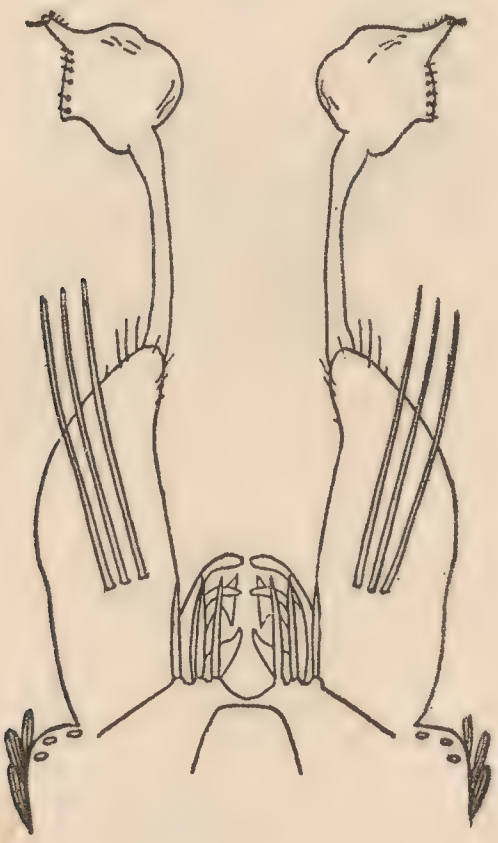

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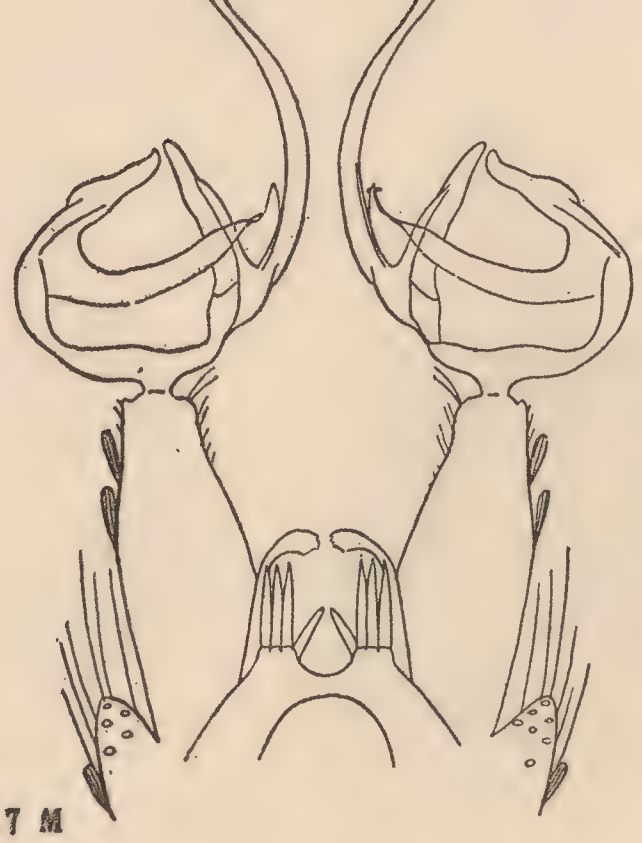

27 M

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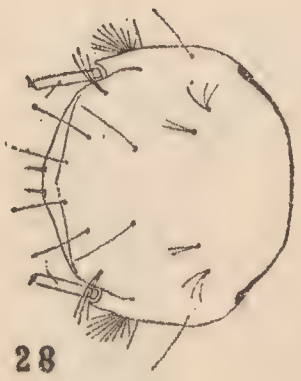

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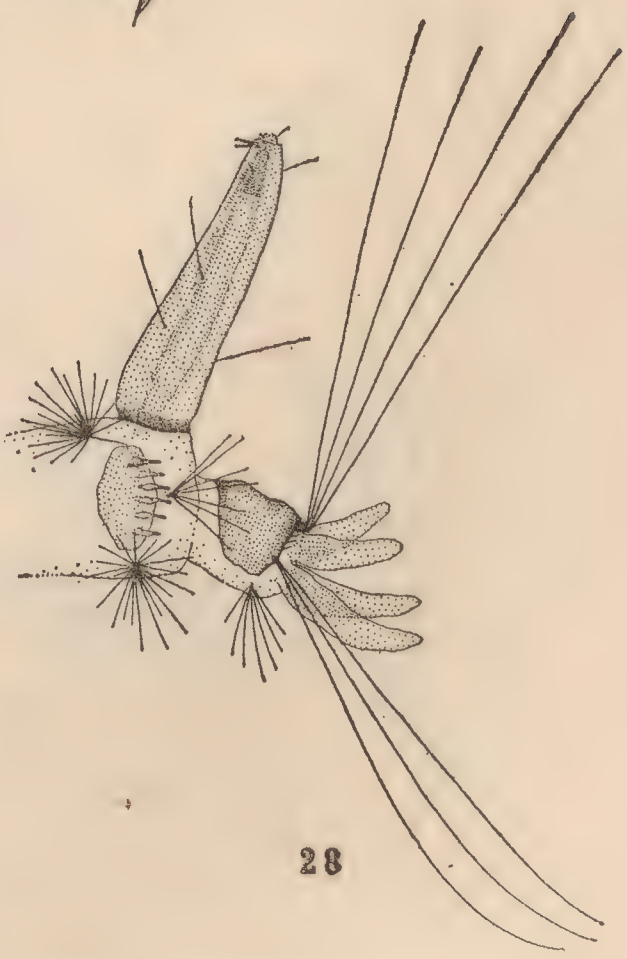
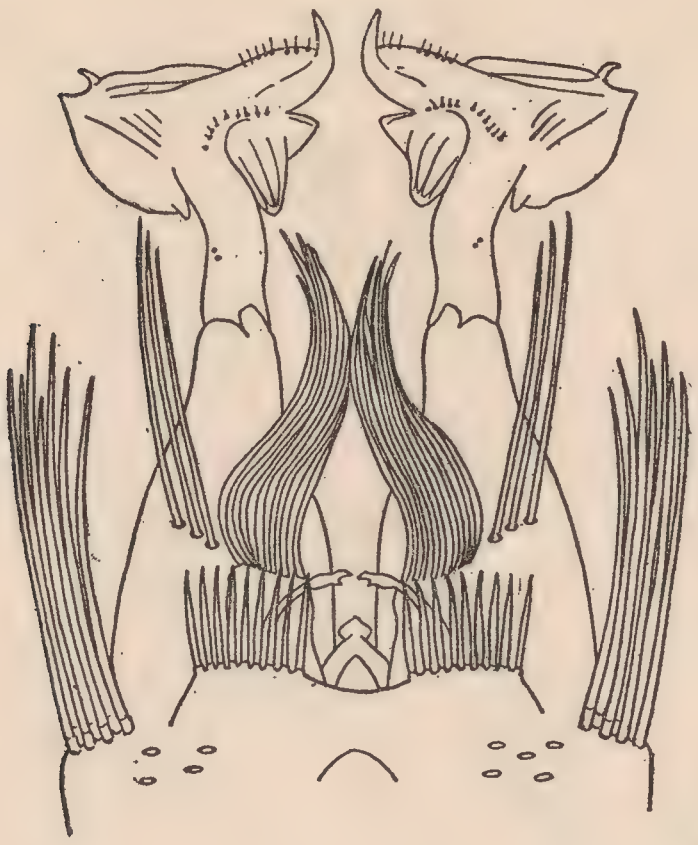


28

26. *Wyeomyia trinidadensis* Theob., male hypopygium and larva
27. *Wyeomyia melanopus* Dyar, male hypopygium
27M. *Wyeomyia pallidoventer* Theob., male hypopygium
28. *Miamyia codiocampa* D. and K., male hypopygium and larva



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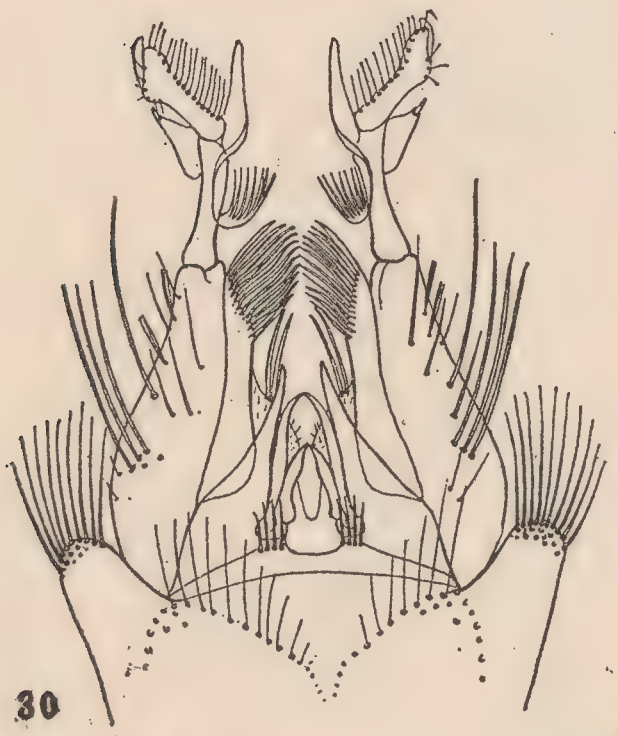

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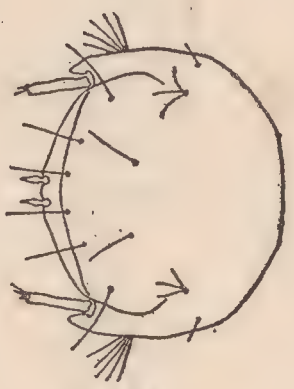

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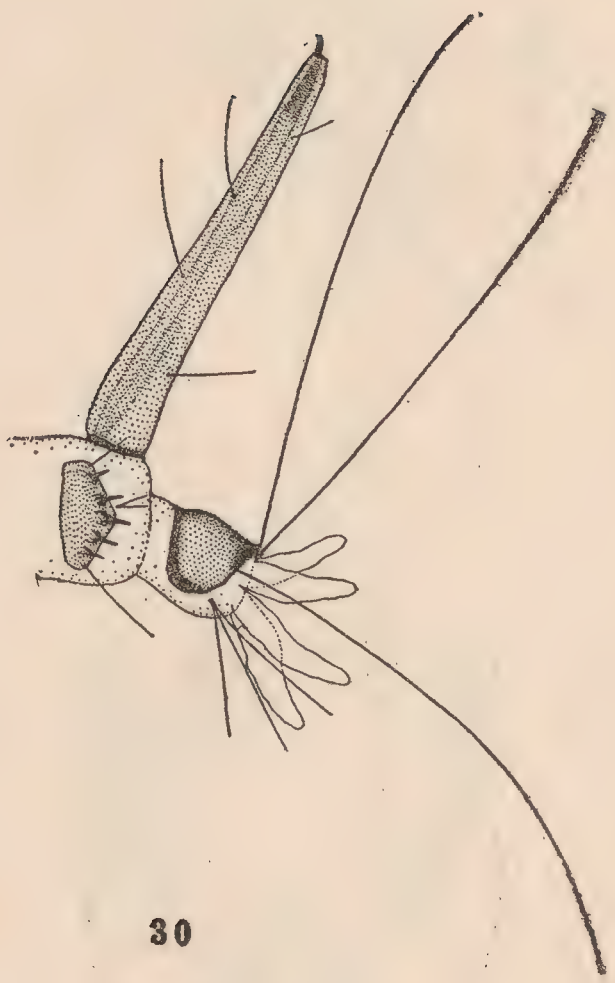

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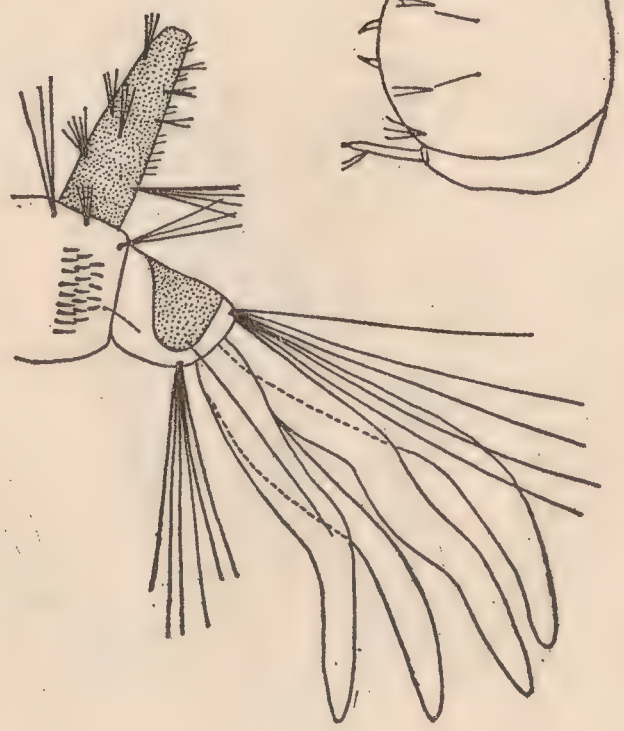
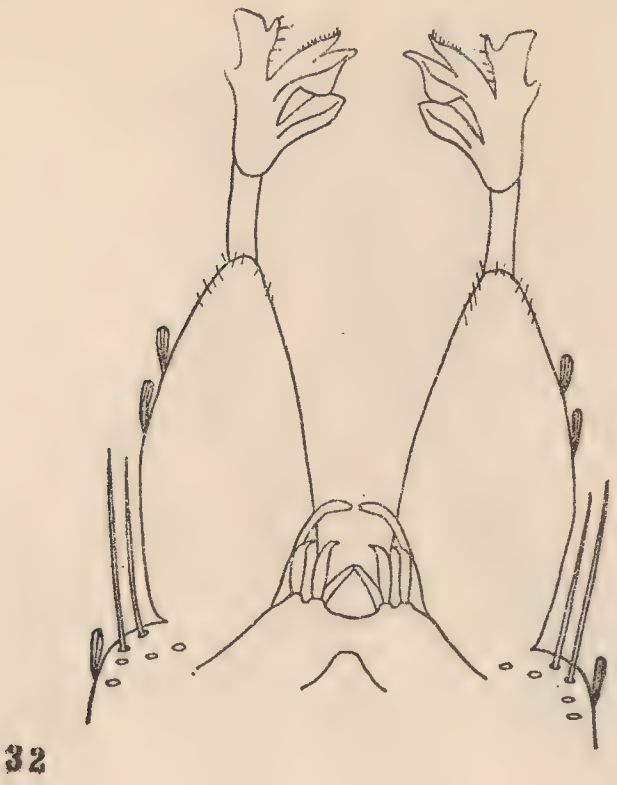


31

29. *Miamyia serrata* Theob., male hypopygium
30. *Miamyia hosautos* D. and K., male hypopygium and larva
31. *Miamyia occulta* B.-W. and B., male hypopygium and larva



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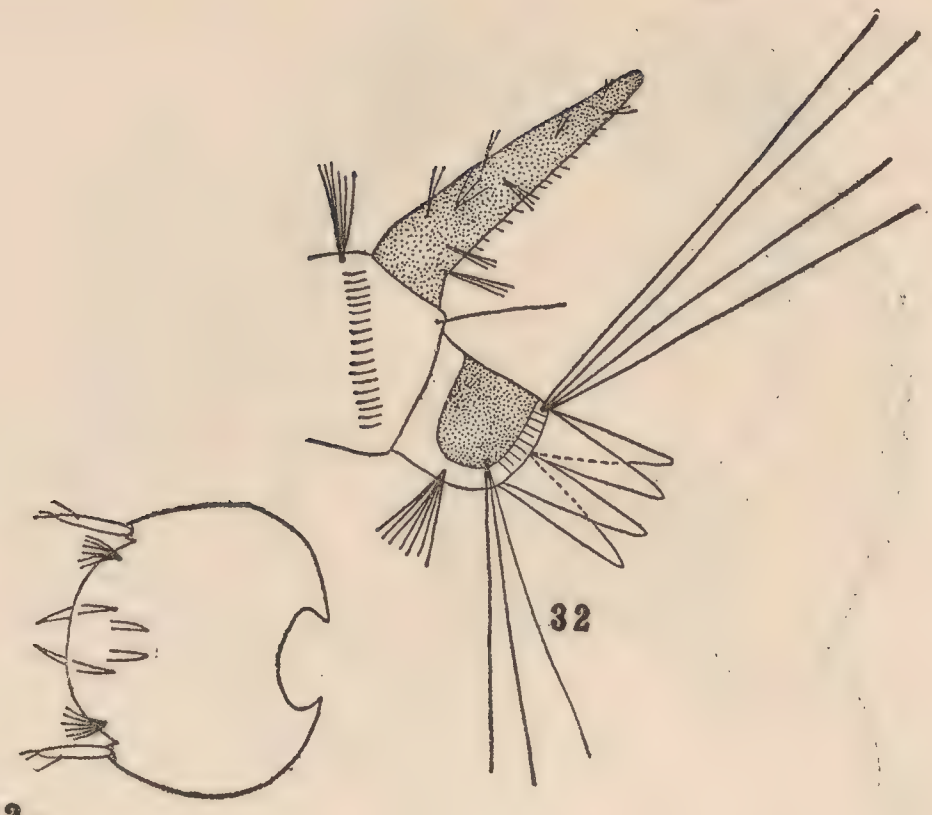

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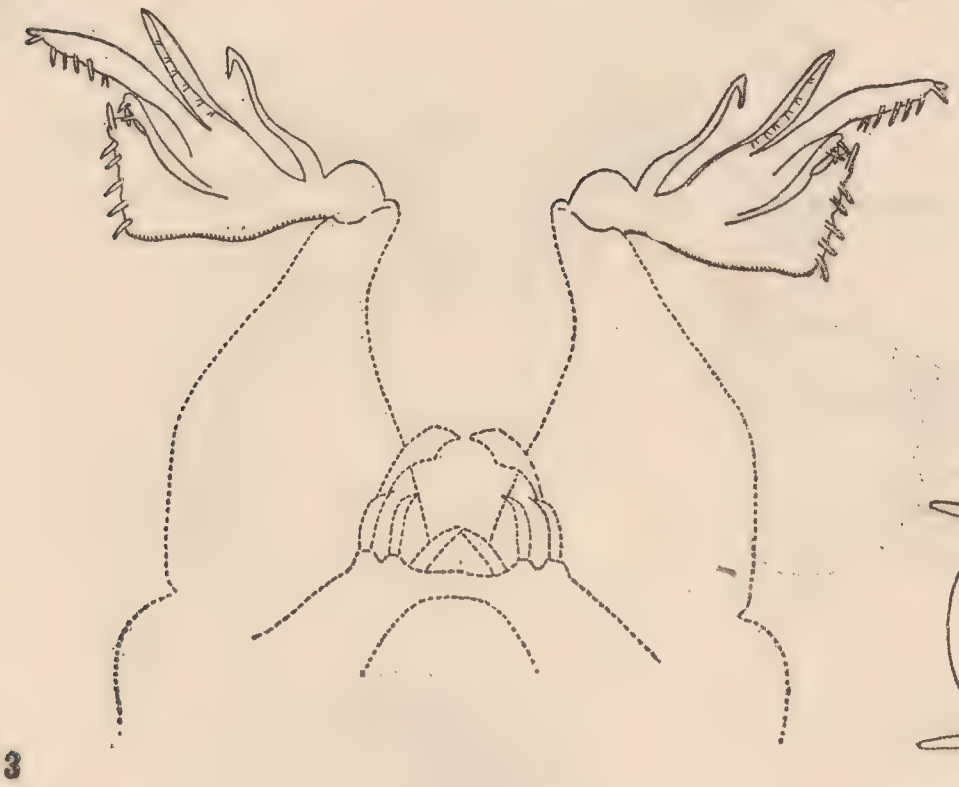

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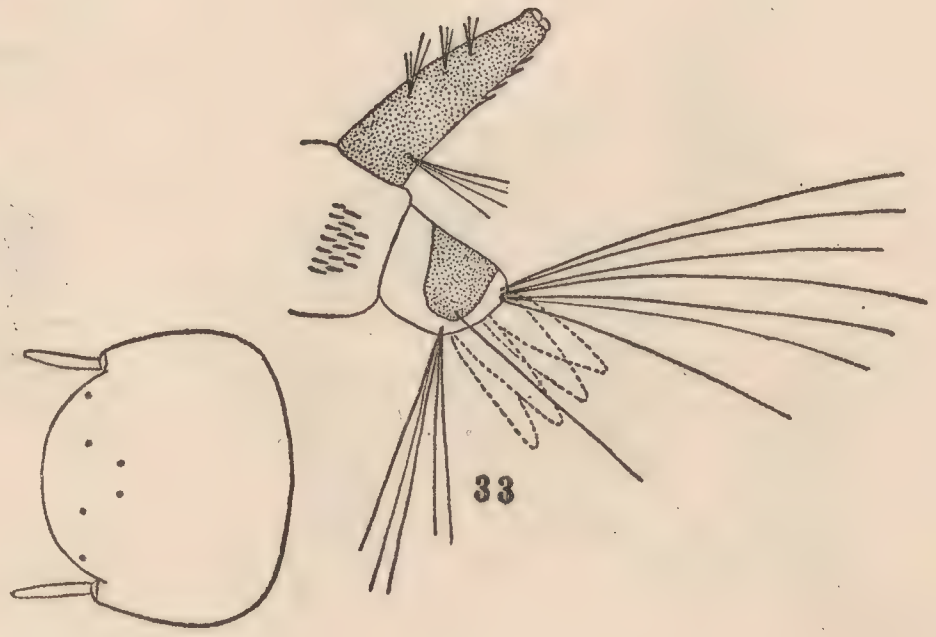

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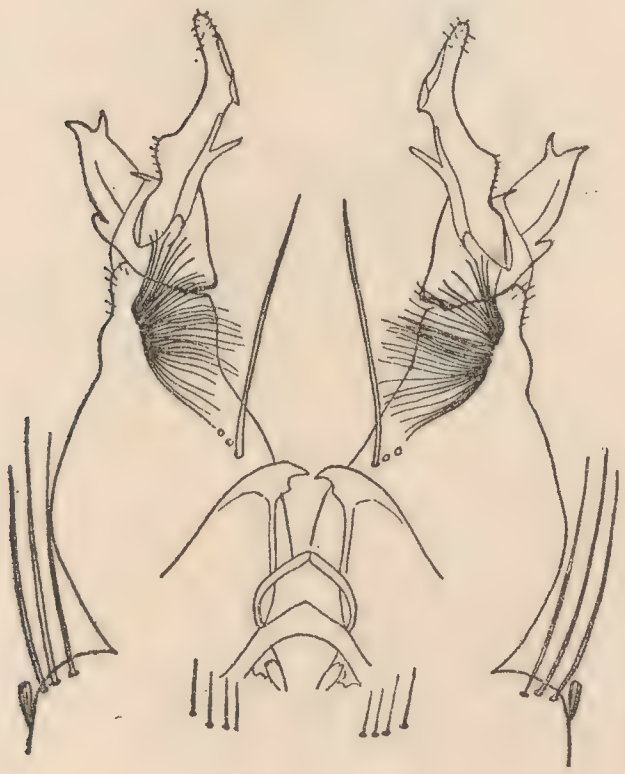

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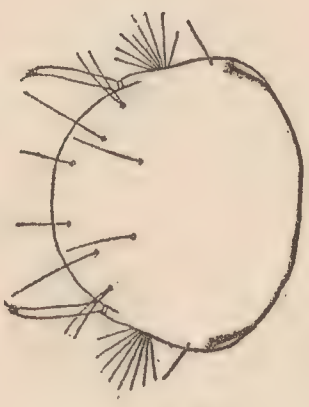
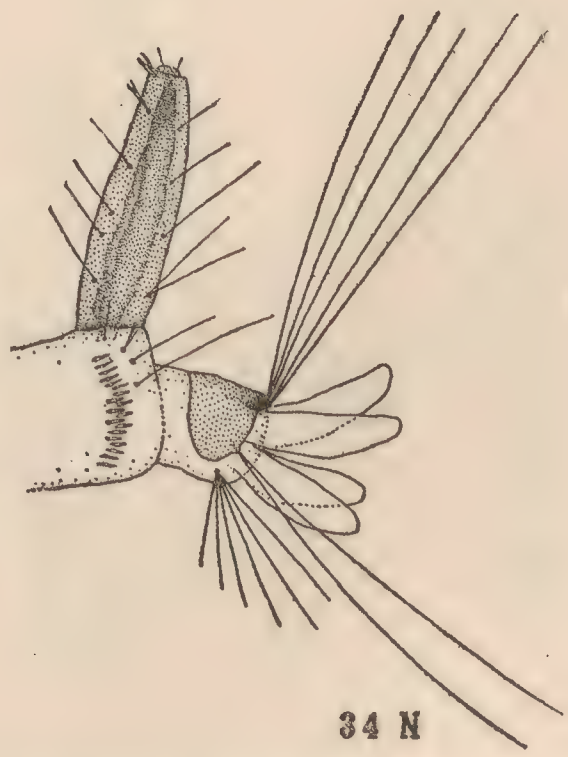


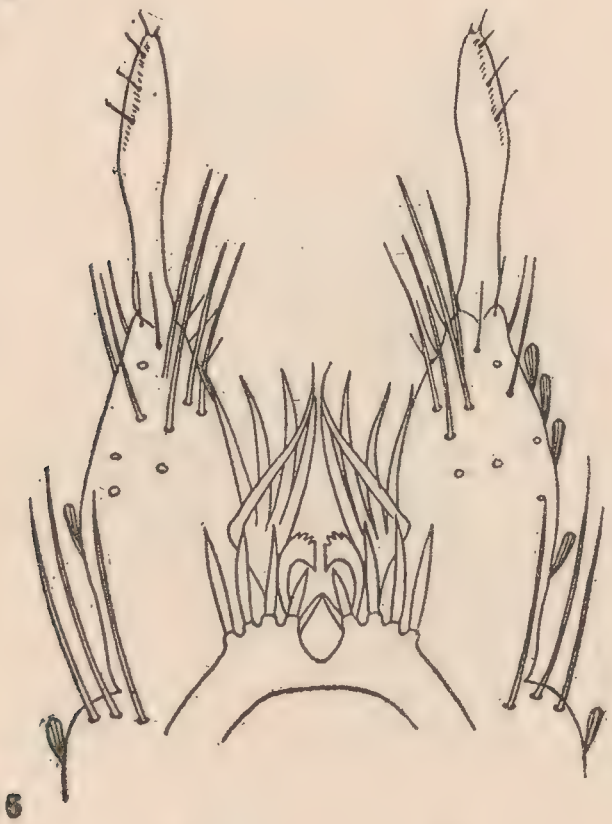
34 N



34 N

32. *Miamyia argenteorostris* B.-W. and B., male hypopygium and larva
33. *Miamyia negrensis* G. and E., male hypopygium and larva
34. *Miamyia ypsipola* Dyar, male hypopygium
34N. *Miamyia hemisagnosta* D. and K., larva

35



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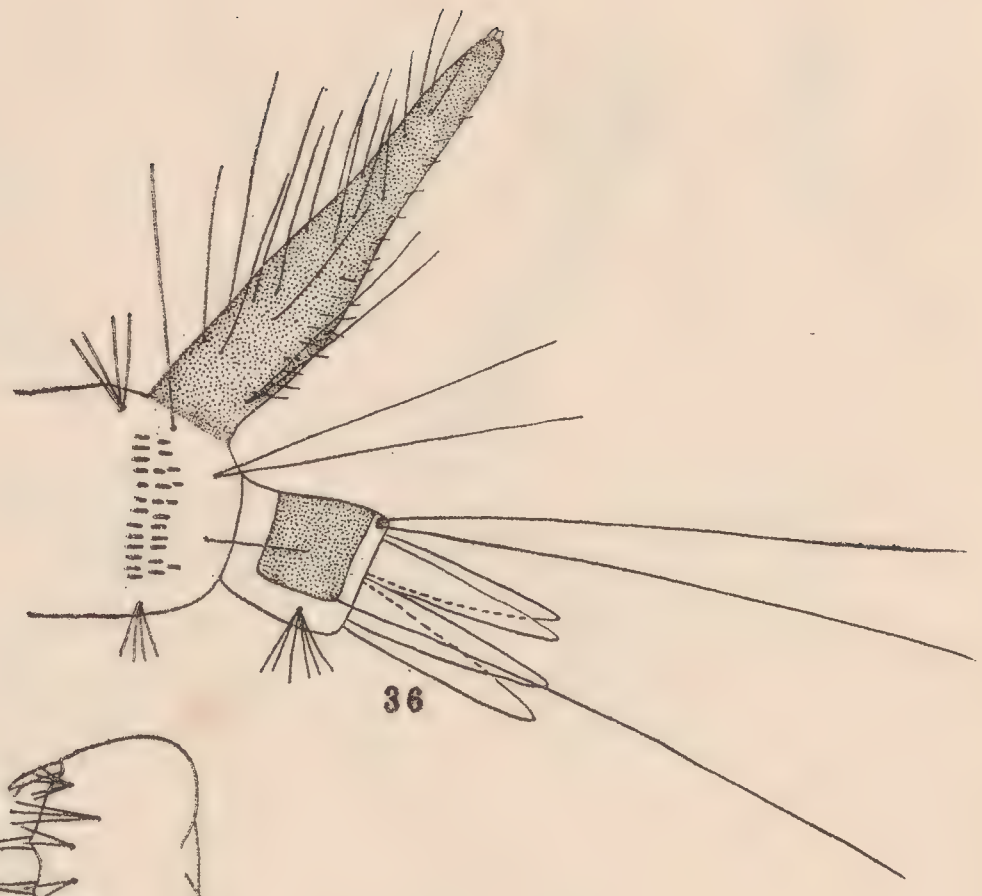

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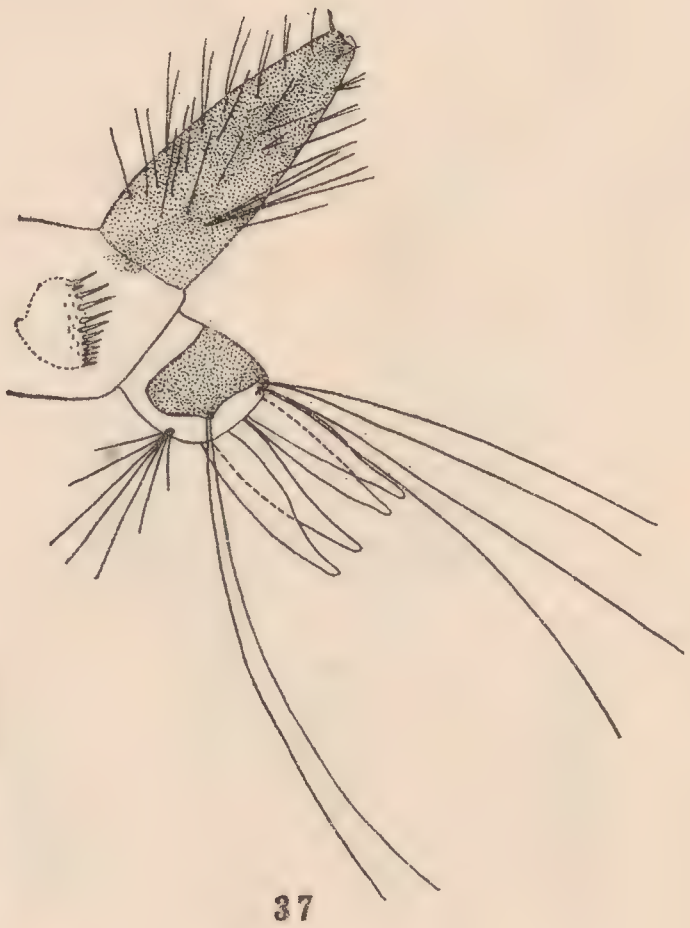

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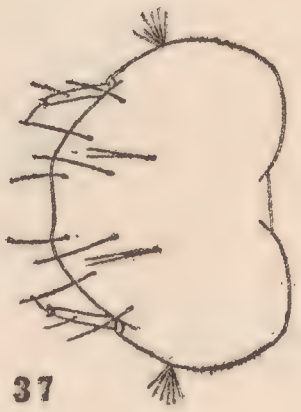
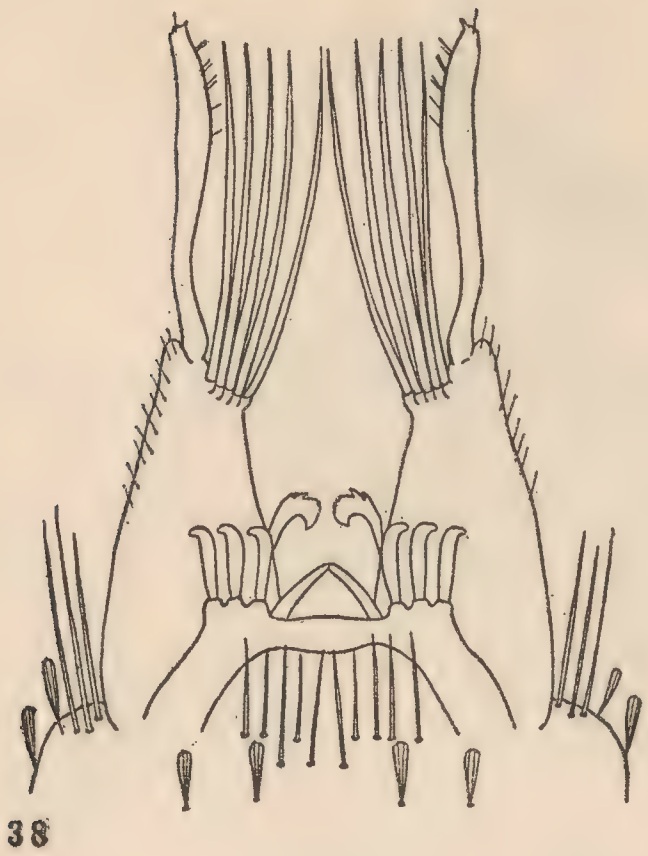


37

35. *Miamyia florestan* Dyar, male hypopygium
36. *Wyeomyia aphobema* Dyar, male hypopygium and larva
37. *Wyeomyia quasilongirostris* Theob., male hypopygium and larva



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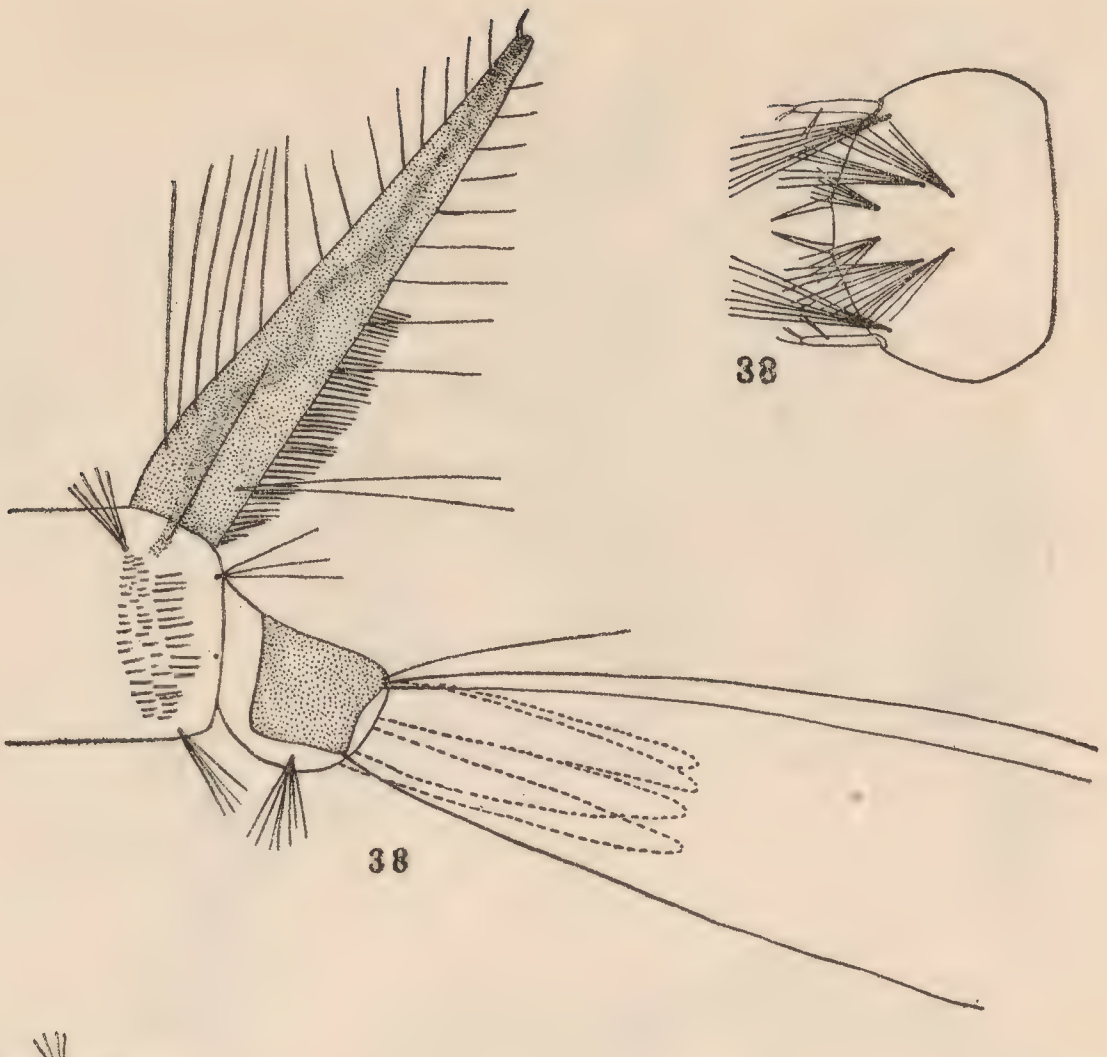

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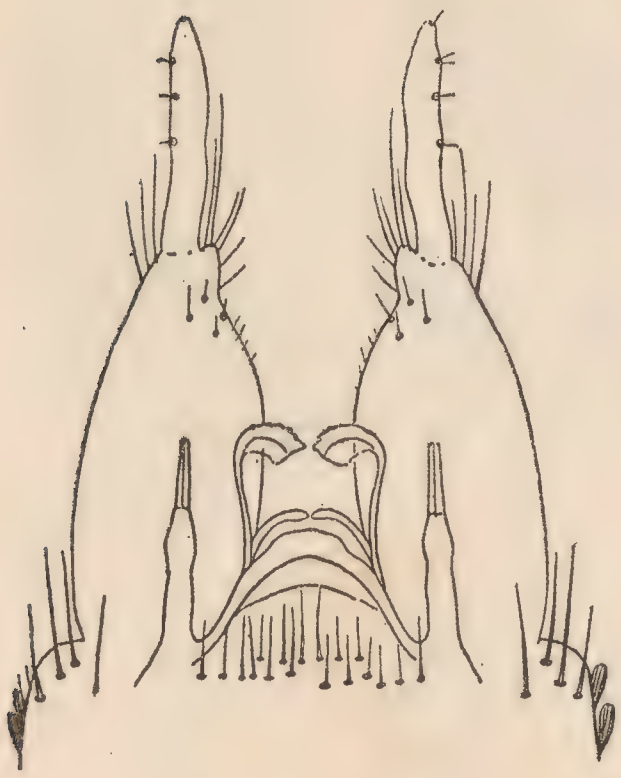

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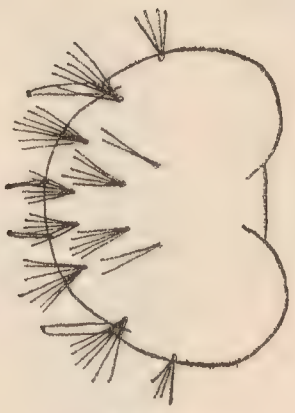

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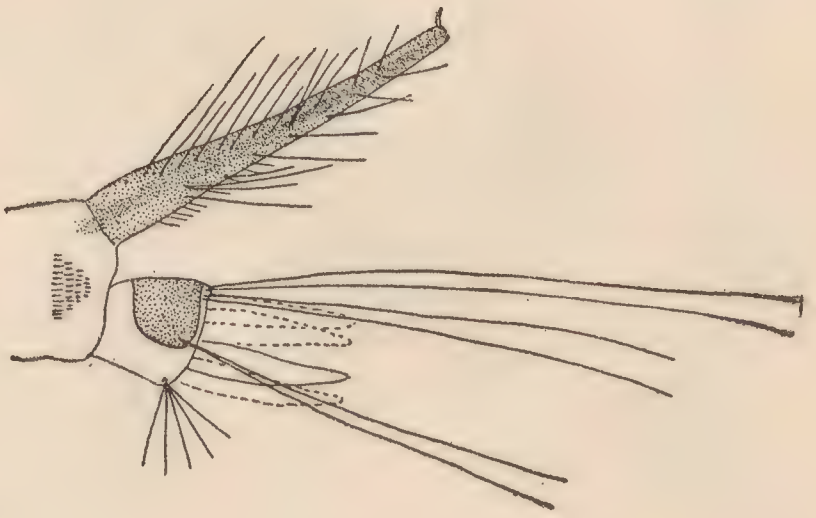

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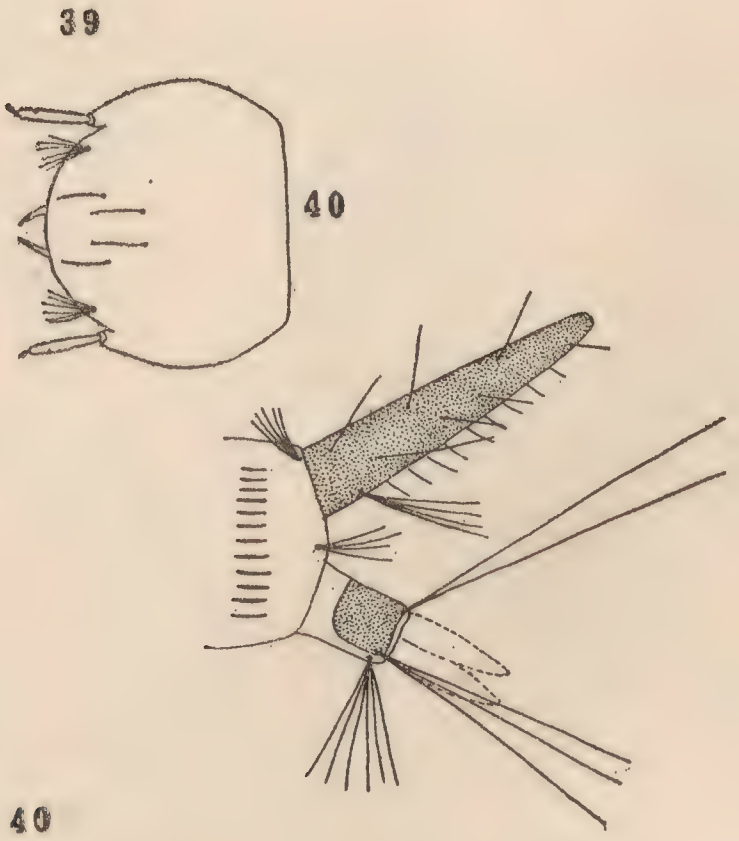
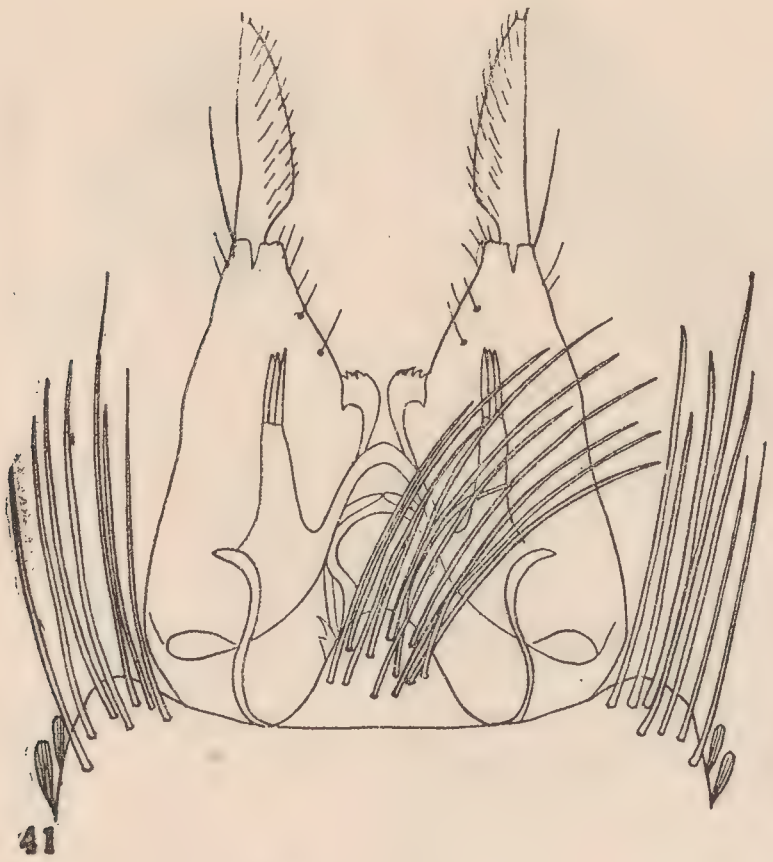


40

38. *Wyeomyia splendida* B.-W. and B., male hypopygium and larva
39. *Wyeomyia incaudata* Root, male hypopygium and larva.
40. *Miamyia roucouyana* B.-W. and B., larva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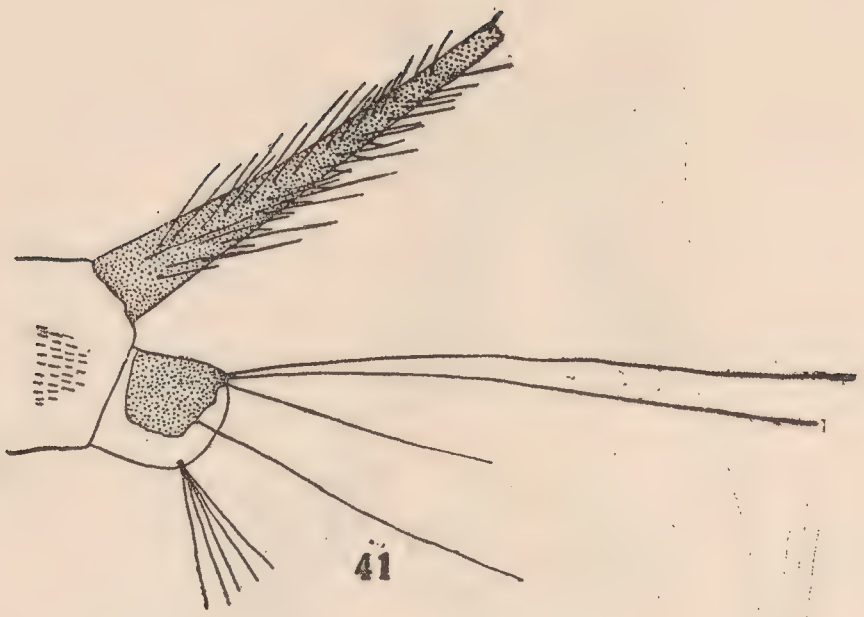
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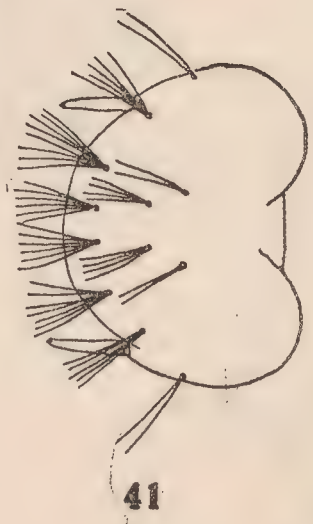
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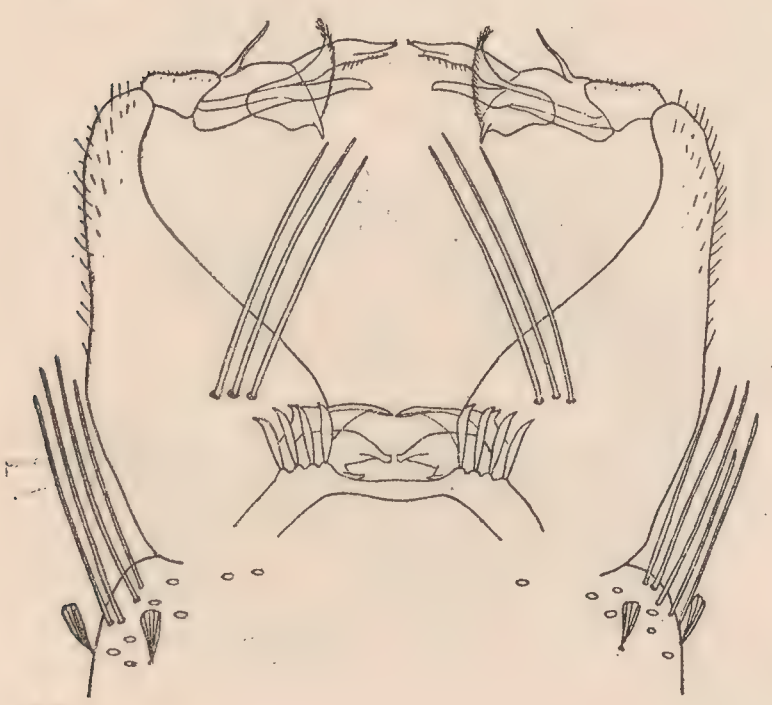
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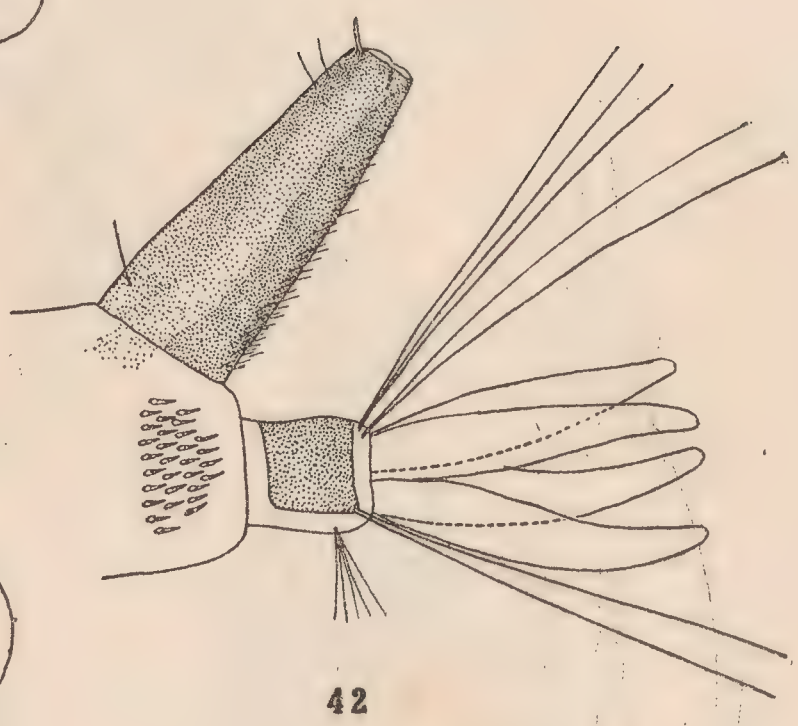
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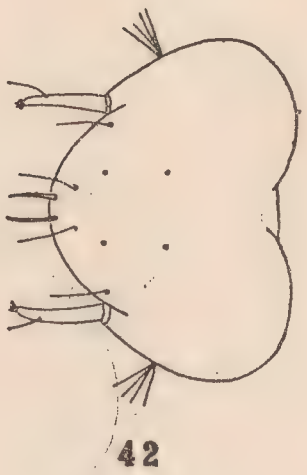
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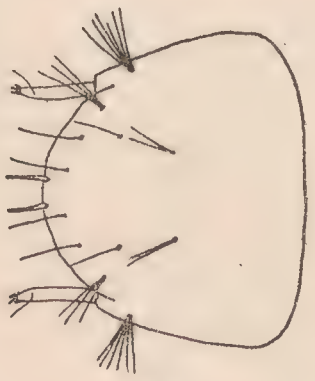
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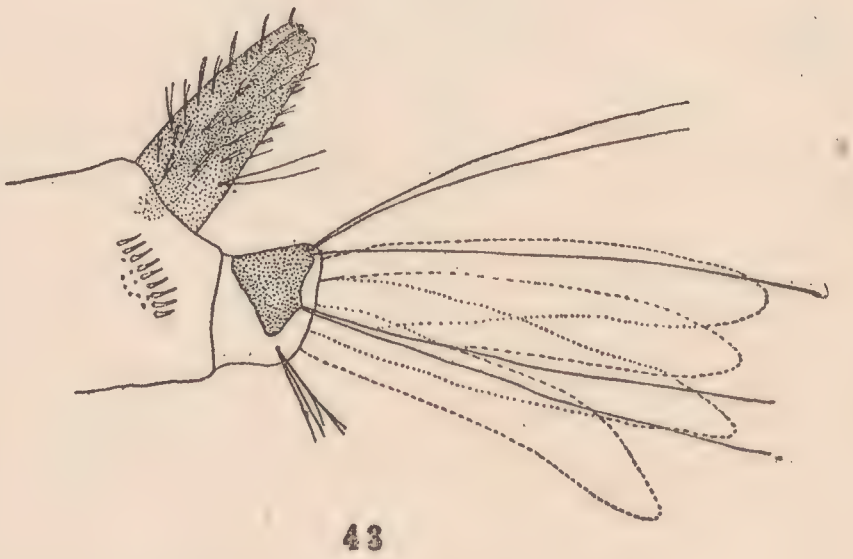
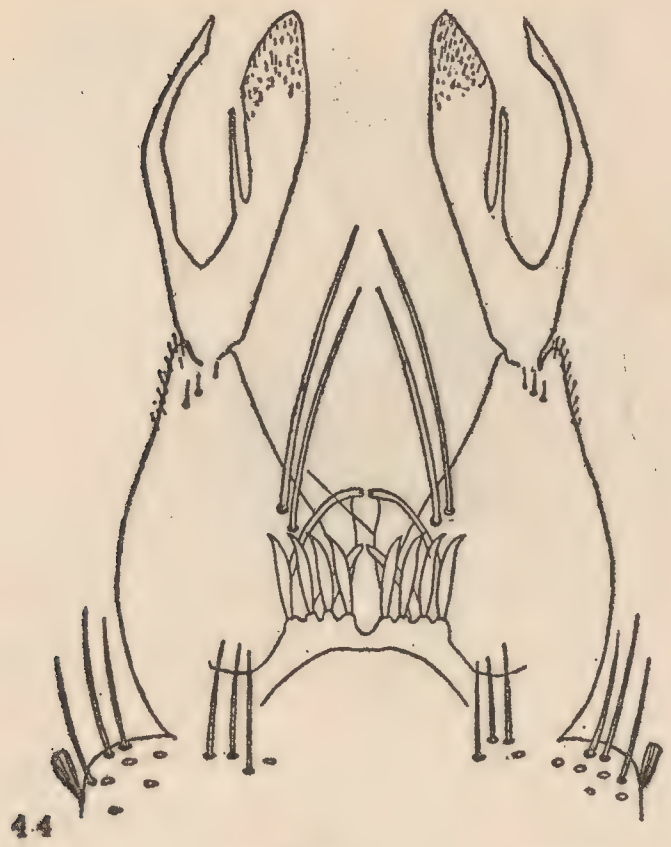

43

41. *Wyeomyia pilicauda* Root, male hypopygium and larva
42. *Dendromyia phroso* H., D. and K., male hypopygium and larva
43. *Dendromyia mystes* Dyar, male hypopygium and larva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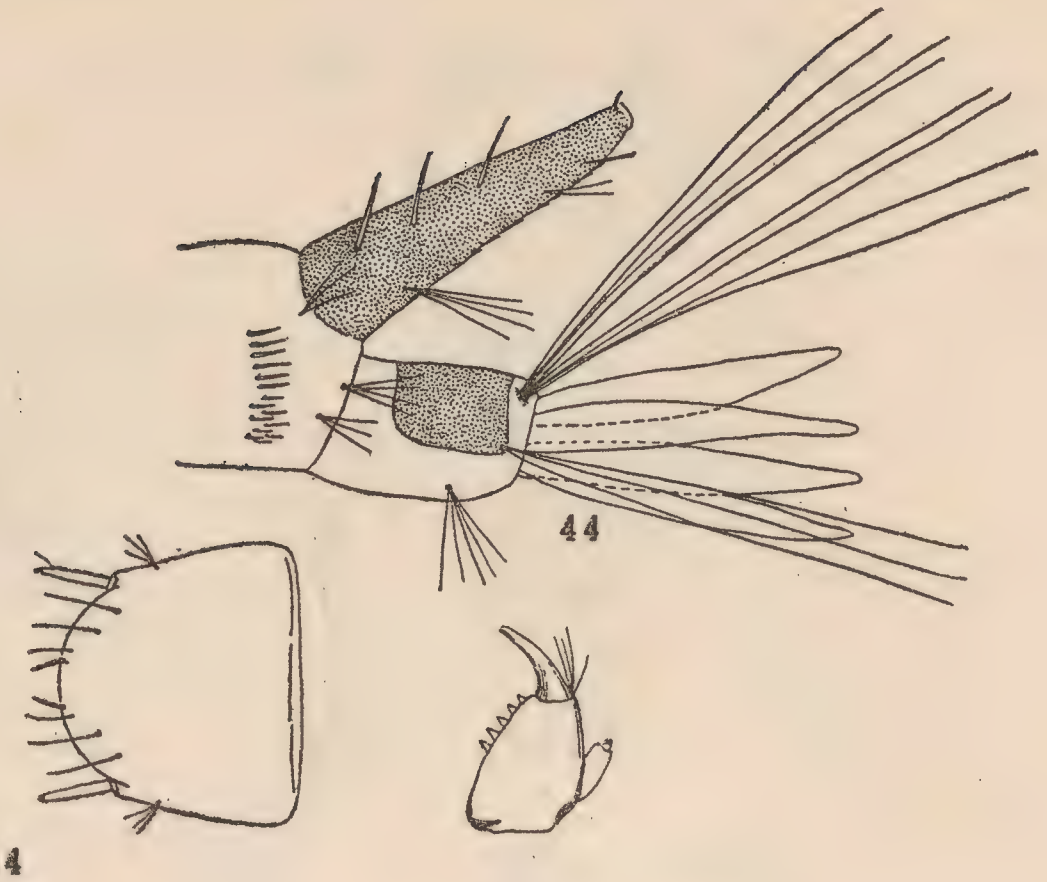
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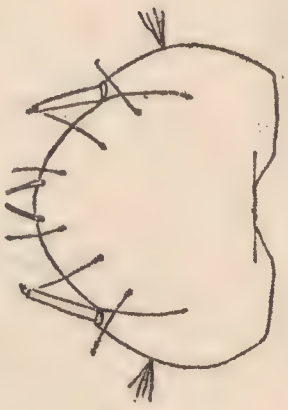
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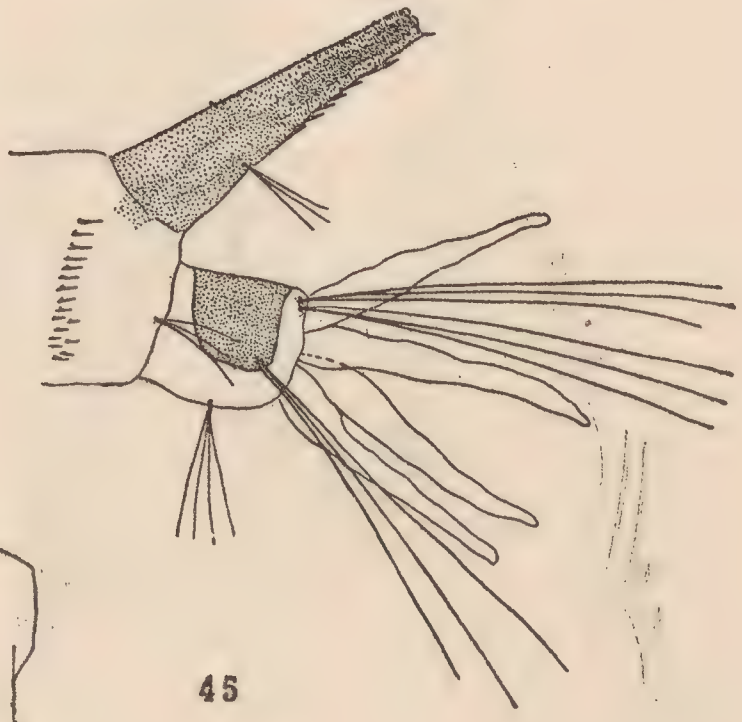
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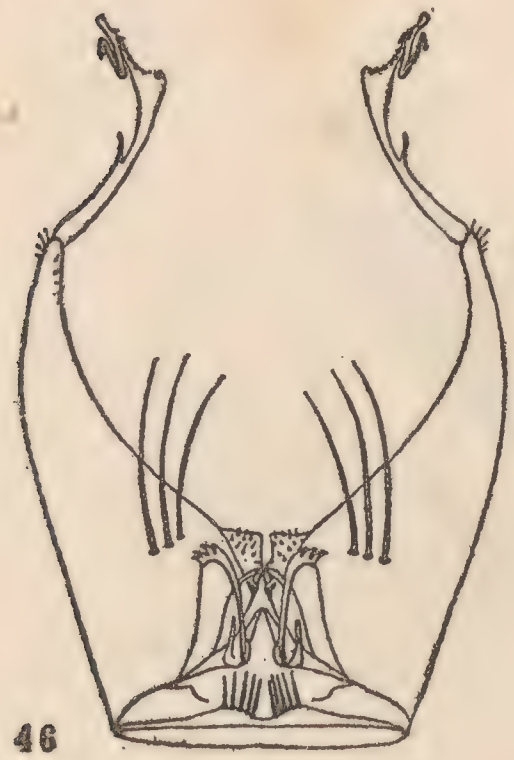
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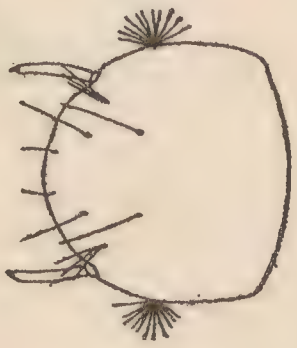
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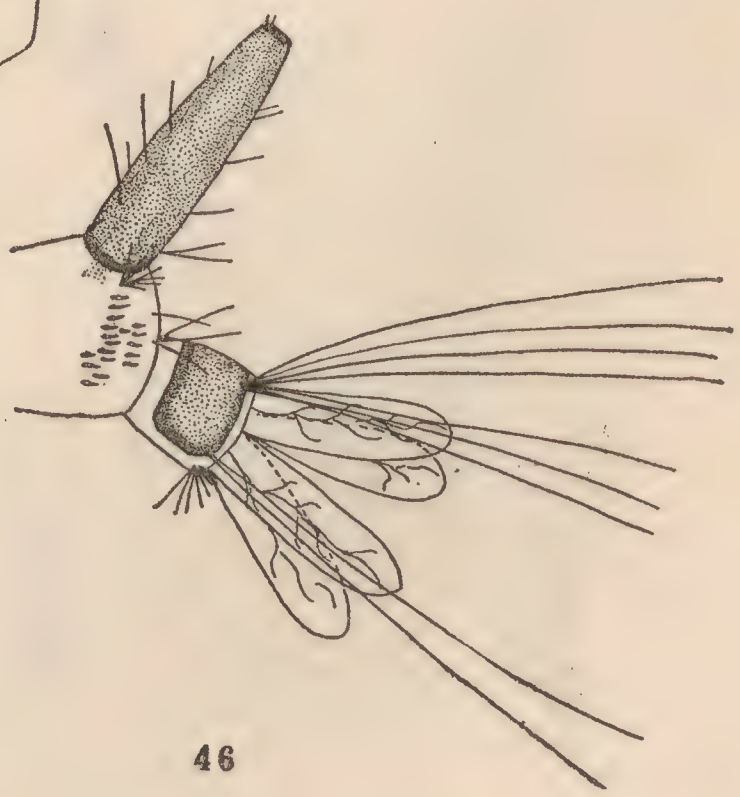
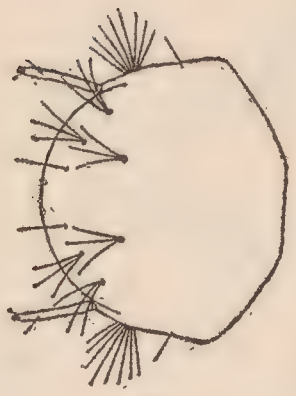

46

44. *Dendromyia prolepidis* D. and K., male hypopygium and larva
45. *Dendromyia complosa* Dyar, male hypopygium and larva
46. *Dendromyia aporonoma* D. and K., male hypopygium and larva

47



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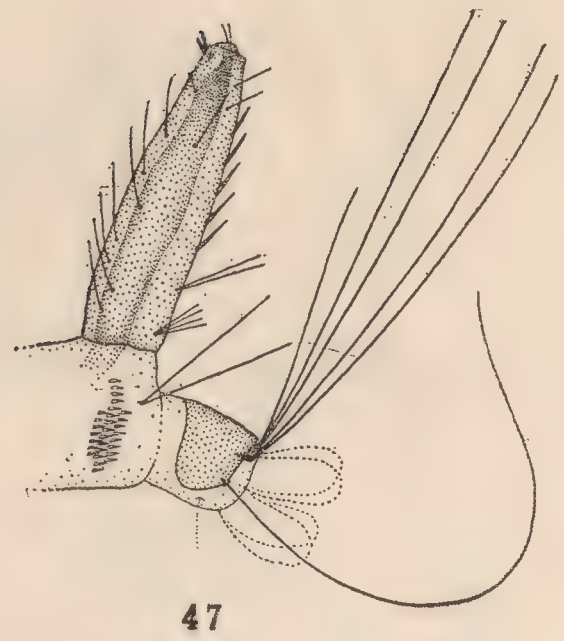

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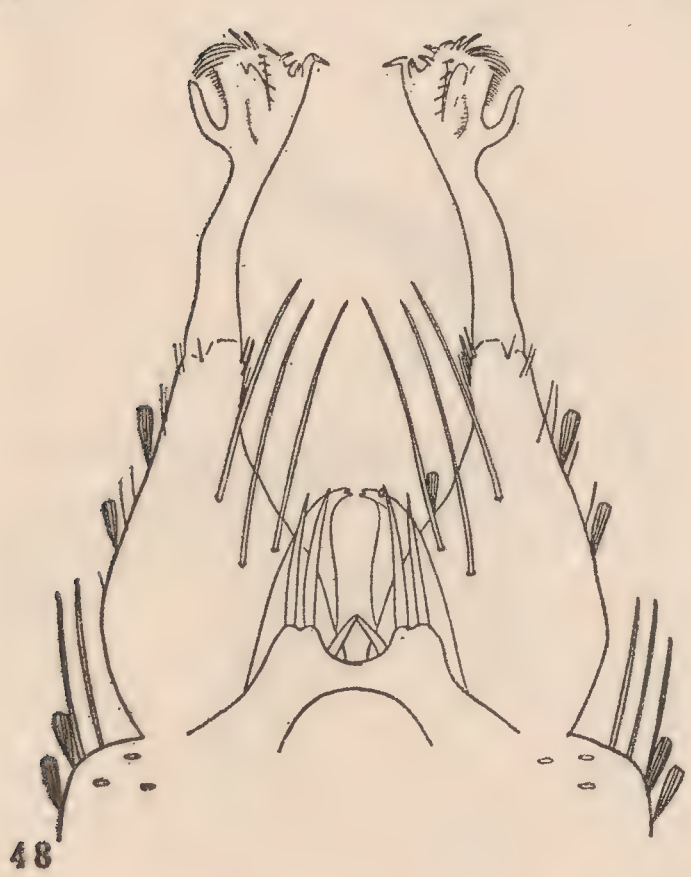

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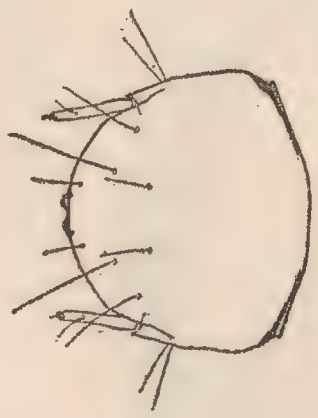

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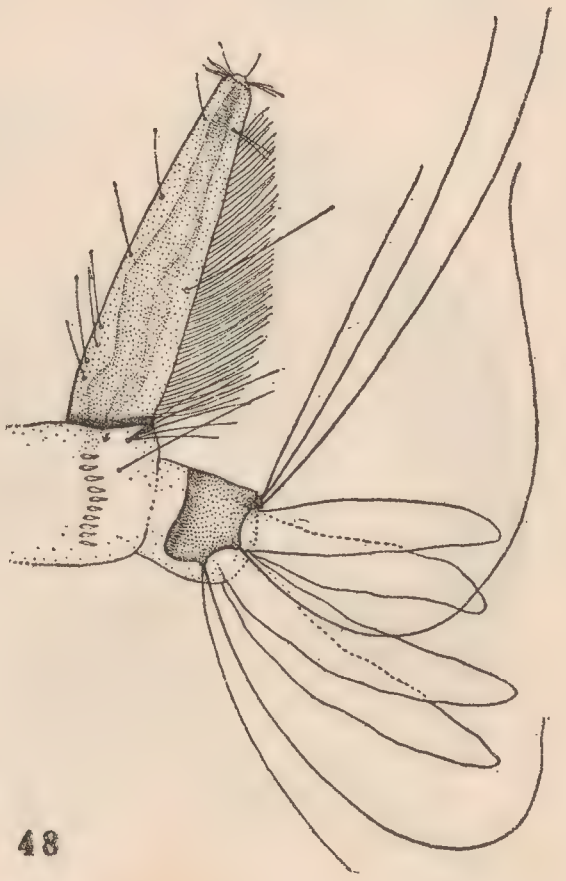

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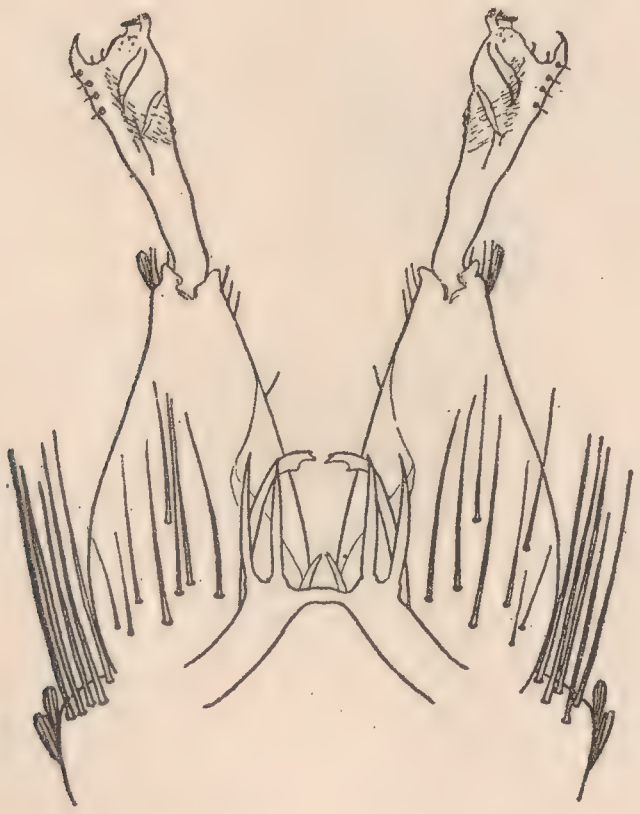

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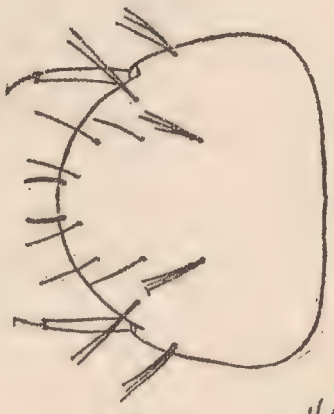

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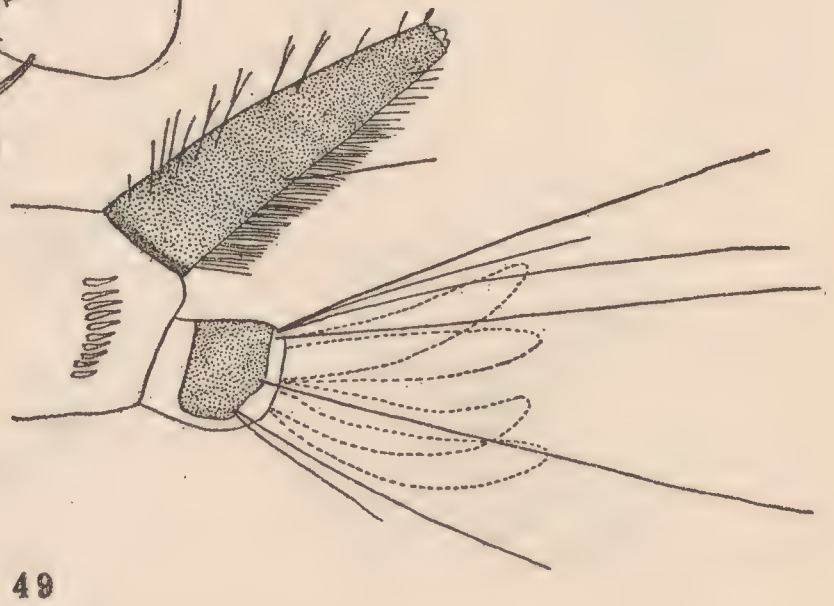
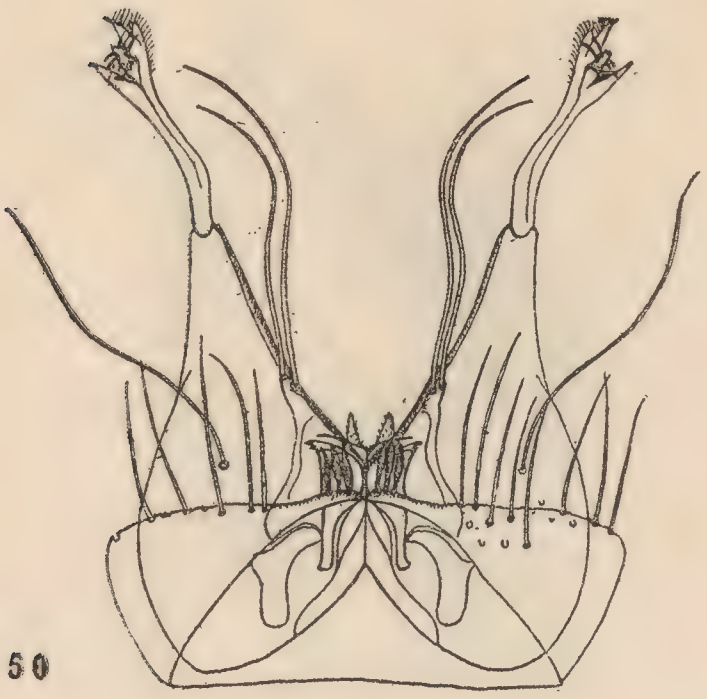


49

47. *Dendromyia chalcocephala* D. and K., male hypopygium and larva
48. *Dendromyia melanocephala* D. and K., male hypopygium and larva
49. *Dendromyia melanoides* Root, male hypopygium and larva



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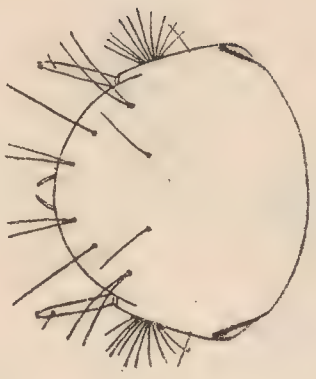

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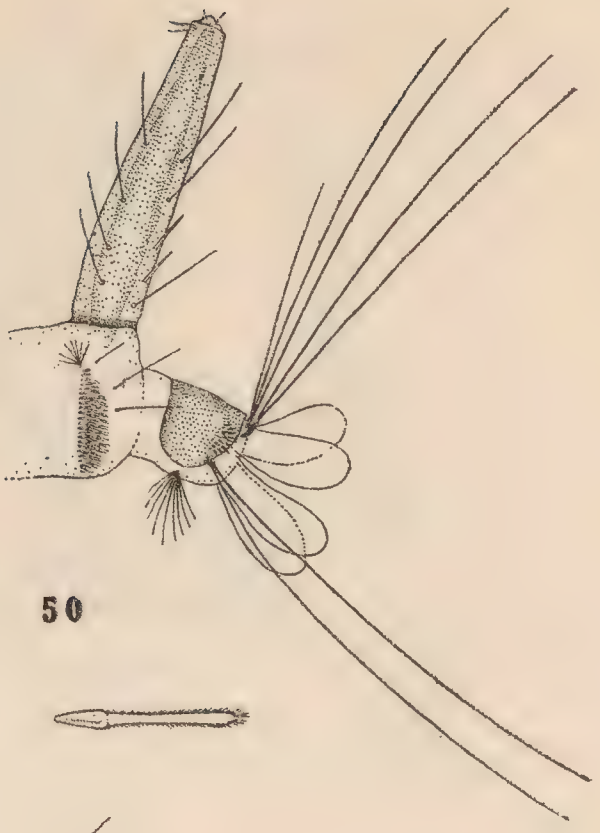

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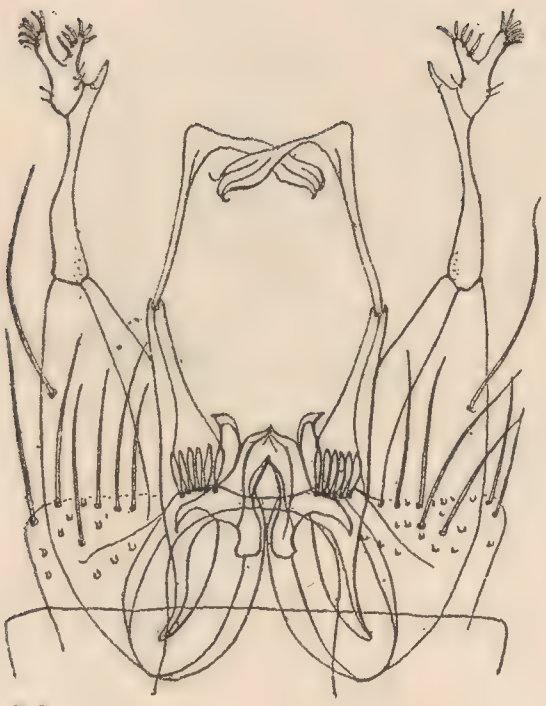

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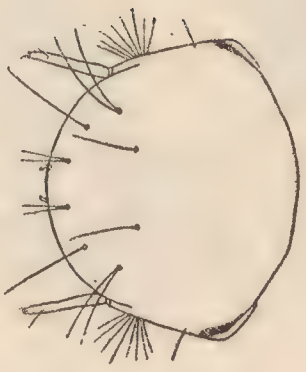

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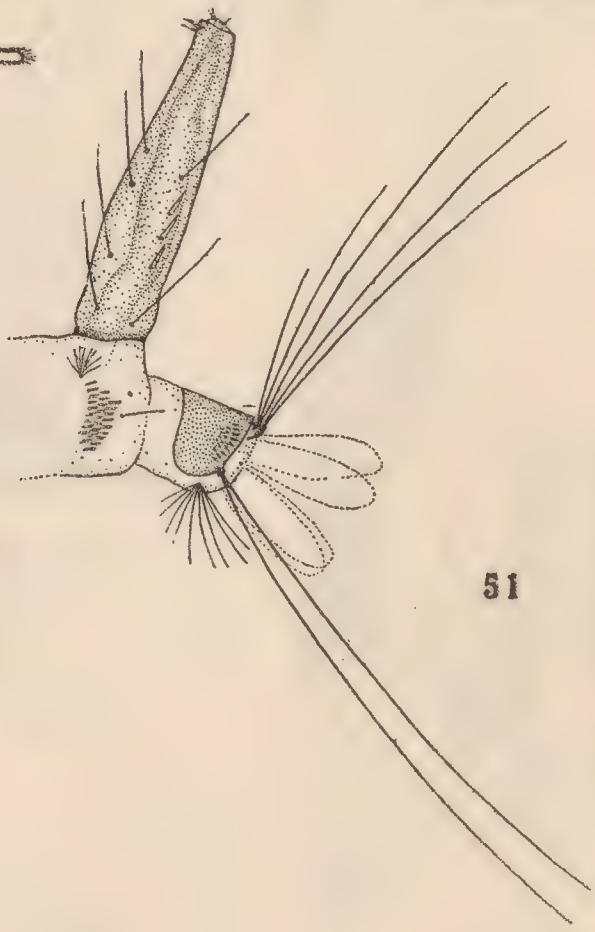

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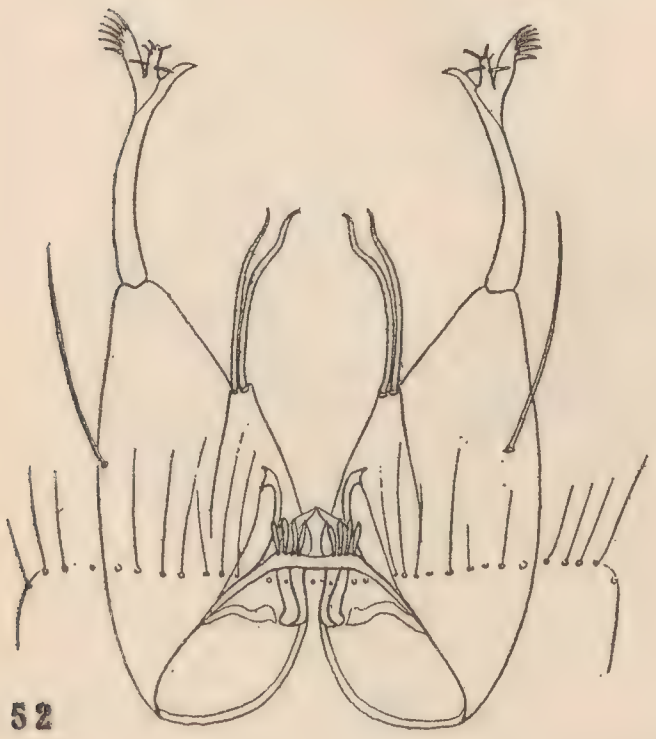

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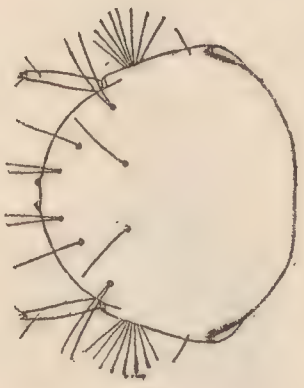
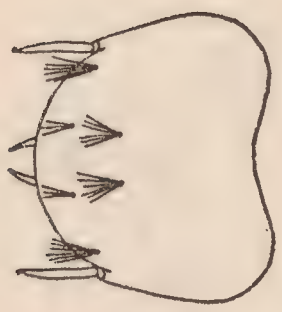


52

52

50. *Dendromyia pseudopecten* D. and K., male hypopygium and larva
51. *Dendromyia ulocoma* Theob., male hypopygium and larva
52. *Dendromyia eloisa* H., D. and K., male hypopygium and larva

53



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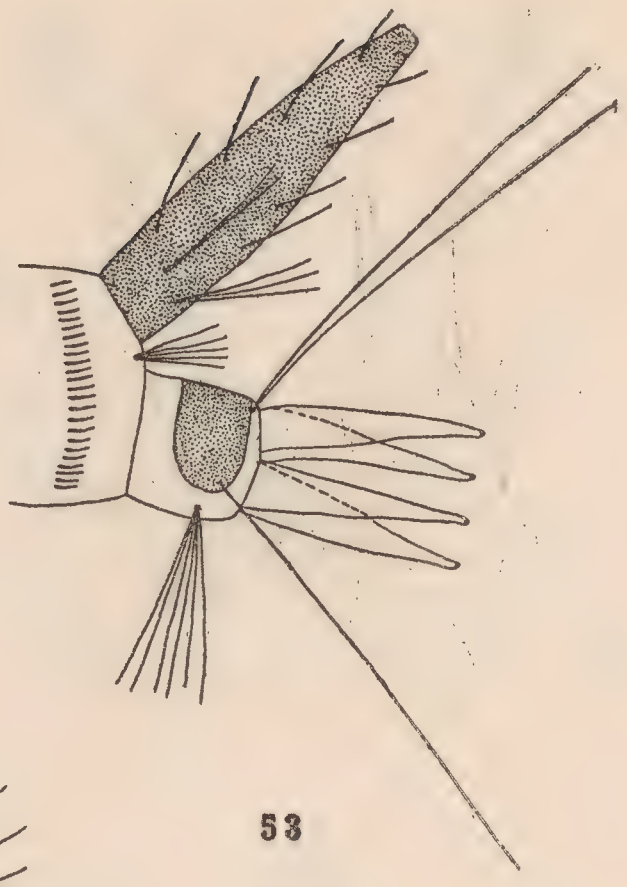

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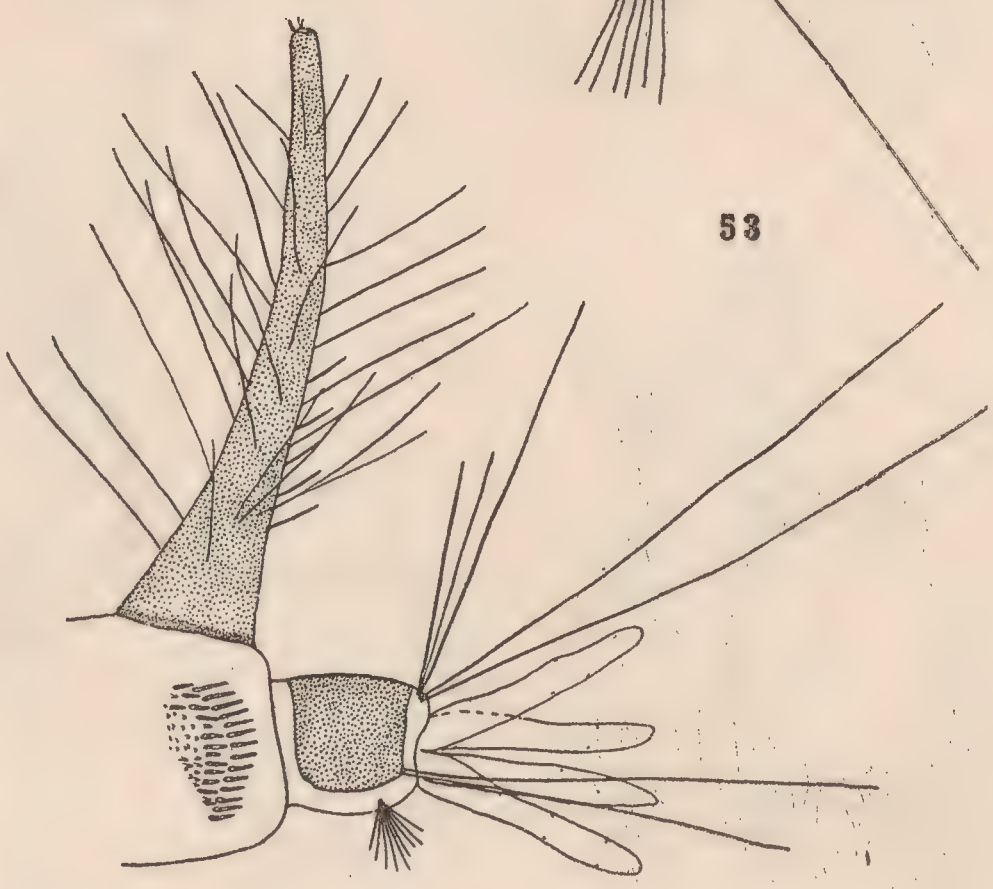

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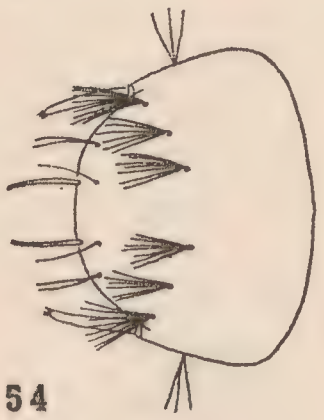

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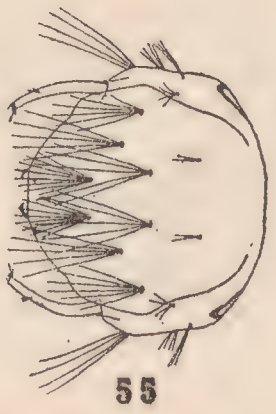

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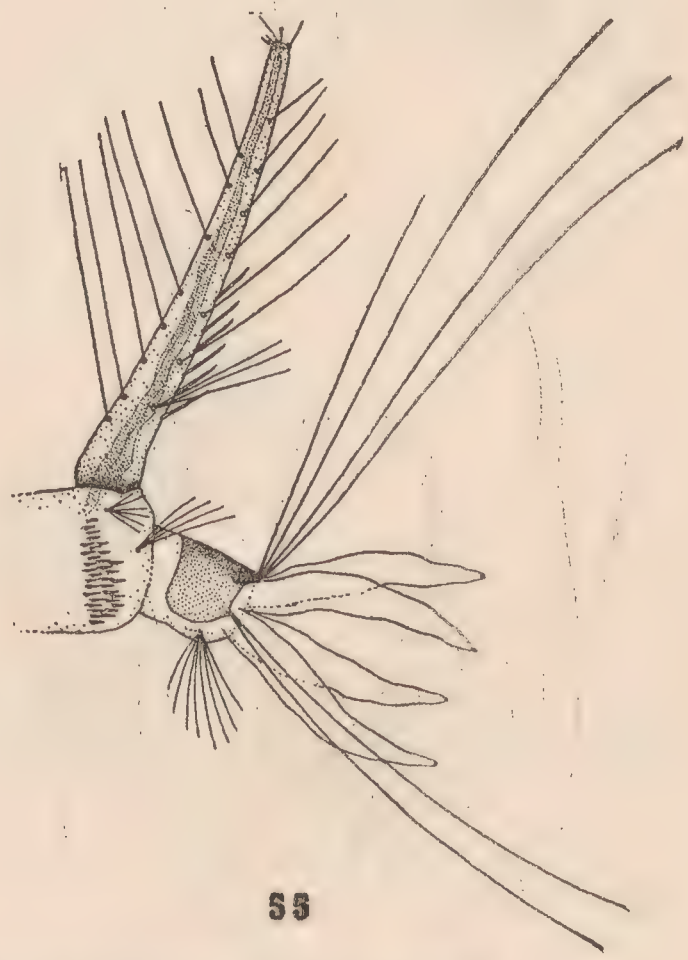

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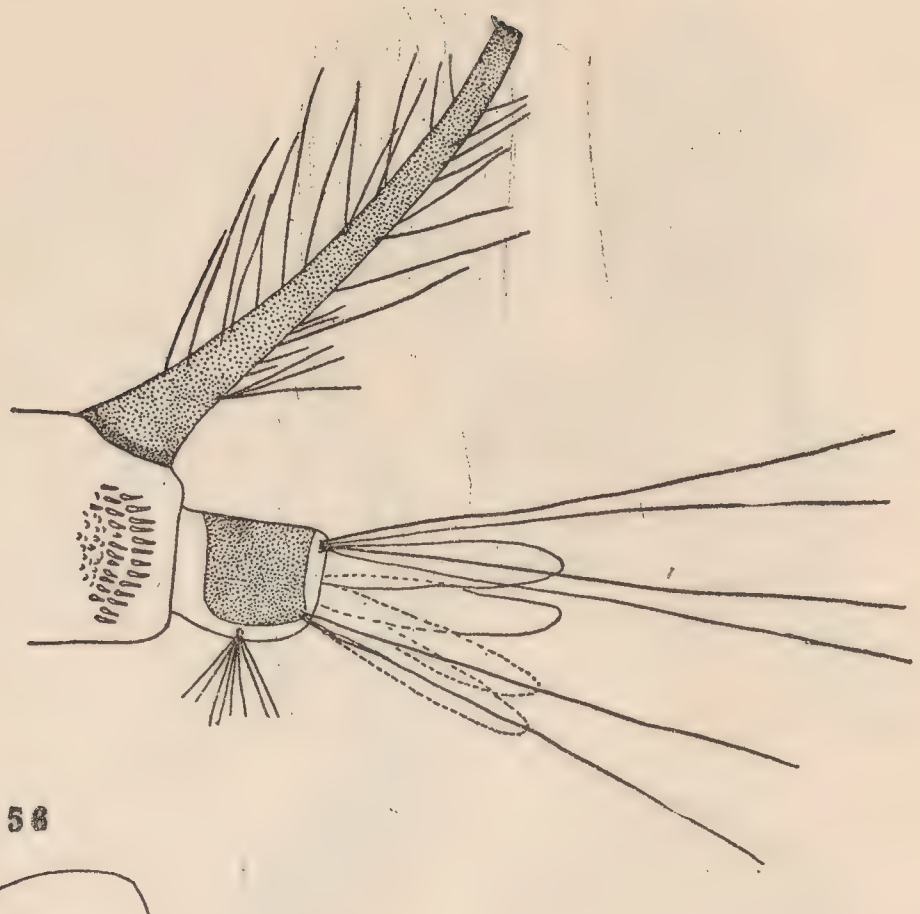
53. *Dendromyia albosquamata* B.-W. and B., male hypopygium and larva
54. *Dendromyia intonca* D. and K., male hypopygium and larva
55. *Dendromyia circumcincta* D. and K., male hypopygium and larva

56



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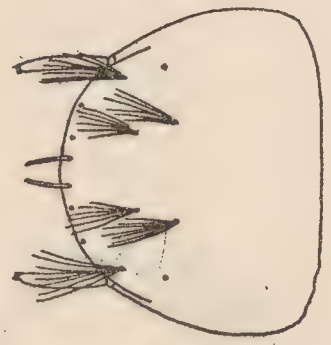

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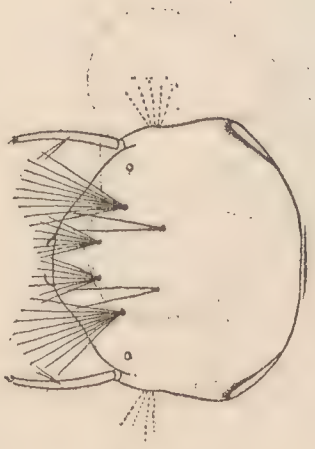

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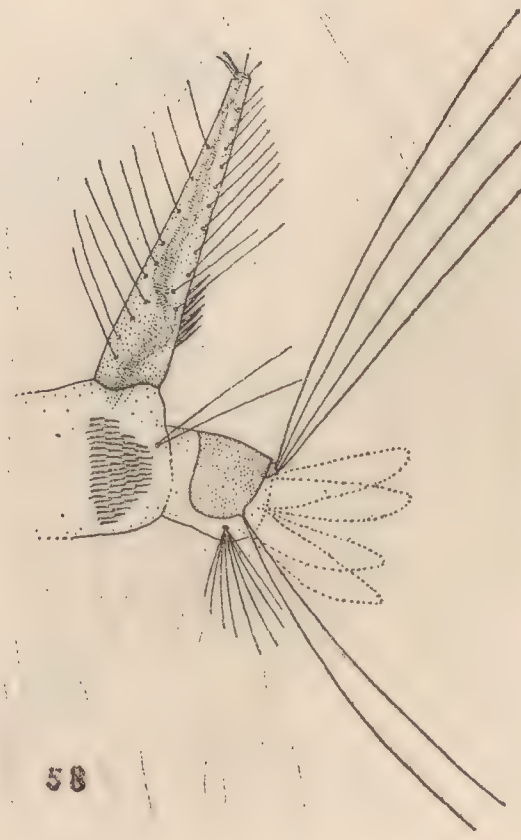
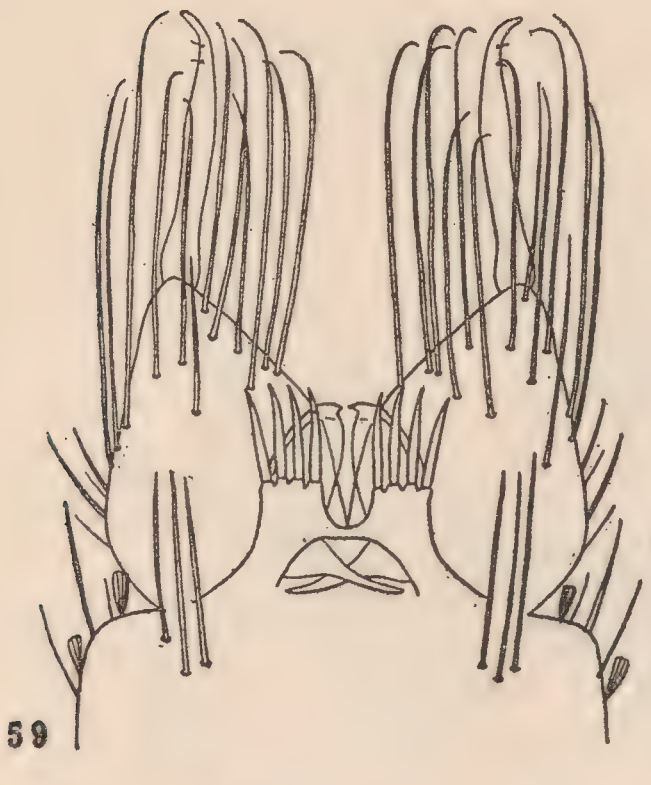


58

56. *Dendromyia cœnonus* H., D. and K., male hypopygium and larva
57. *Dendromyia lamellata* B.-W. and B., male hypopygium
58. *Dendromyia autocratica* D. and K., male hypopygium and larva



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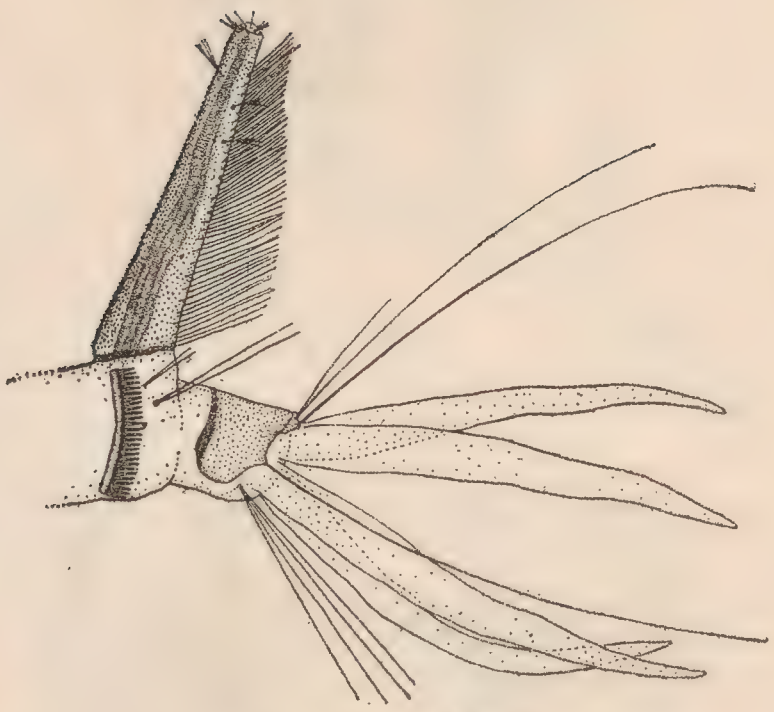

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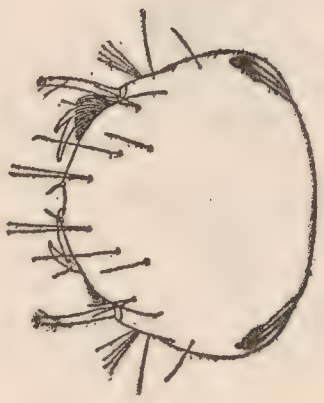

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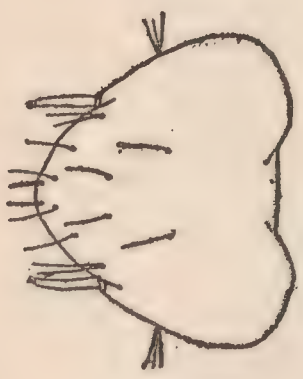

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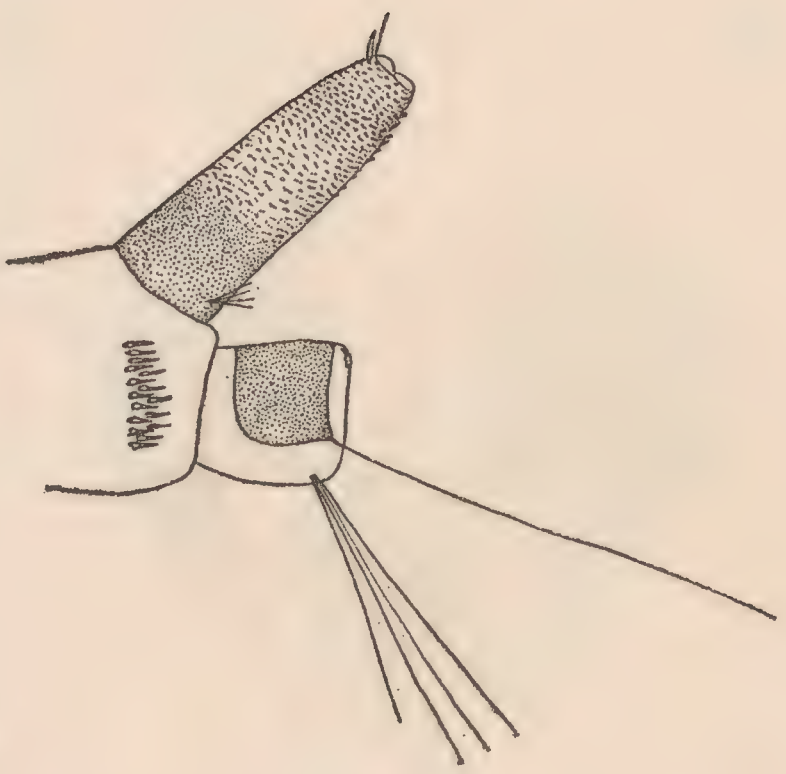
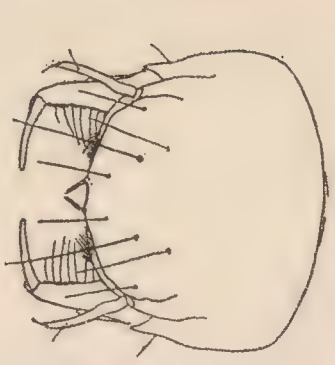
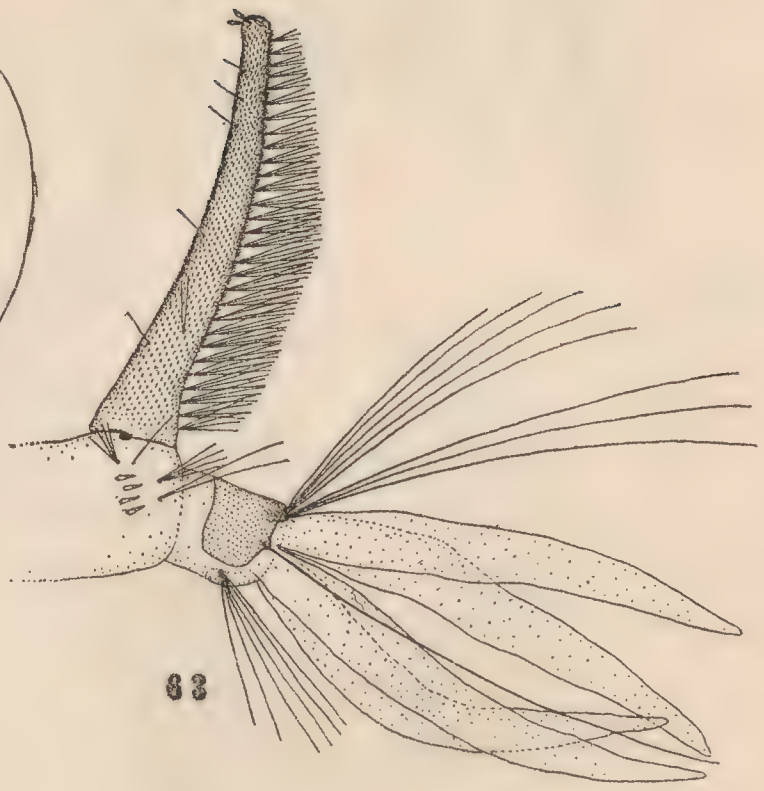
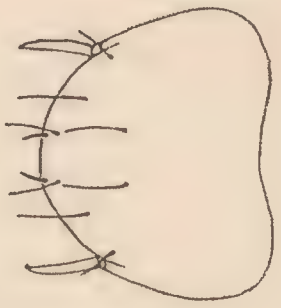


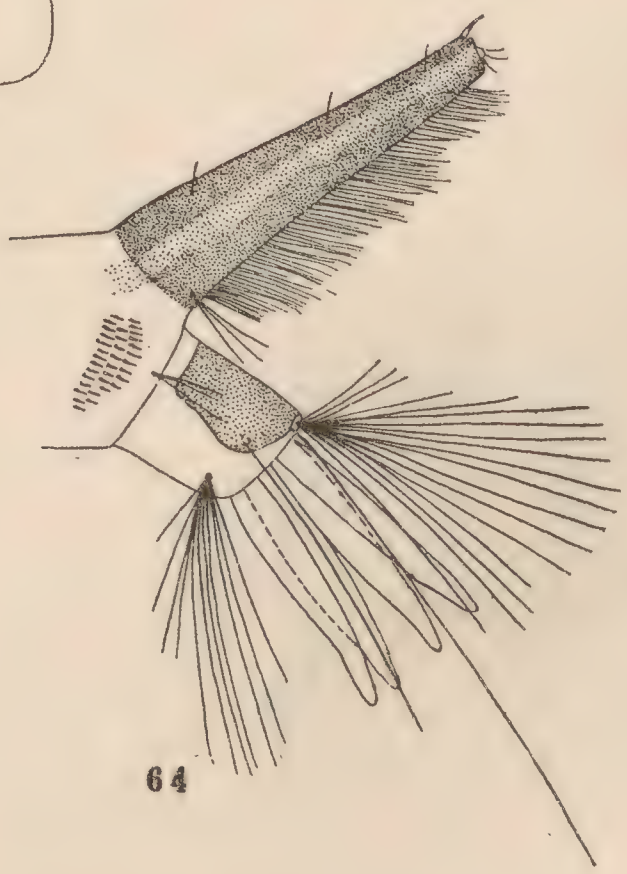
61

59. *Dendromyia clasoleuca* D. and K., male hypopygium
60. *Isostomyia magna* Theob., male hypopygium and larva
61. *Isostomyia espini* Mart., male hypopygium and larva





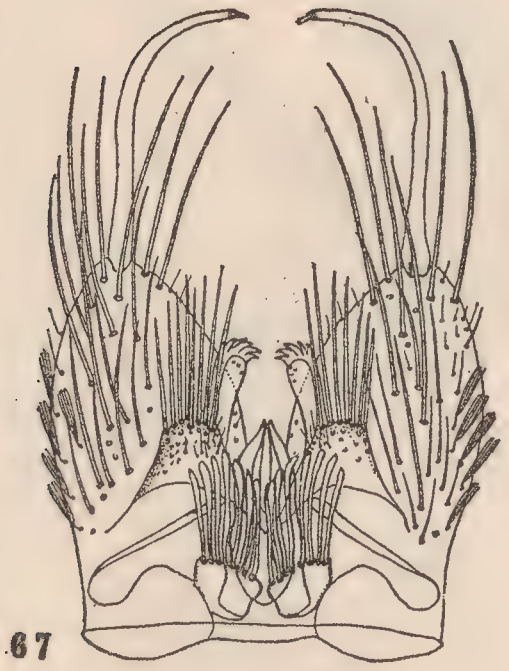




62. *Isostomyia paranensis* Brèthes, male hypopygium
63. *Goeldia longipes* Fab., male hypopygium and larva
64. *Goeldia lunata* Theob., male hypopygium and larva

65

66



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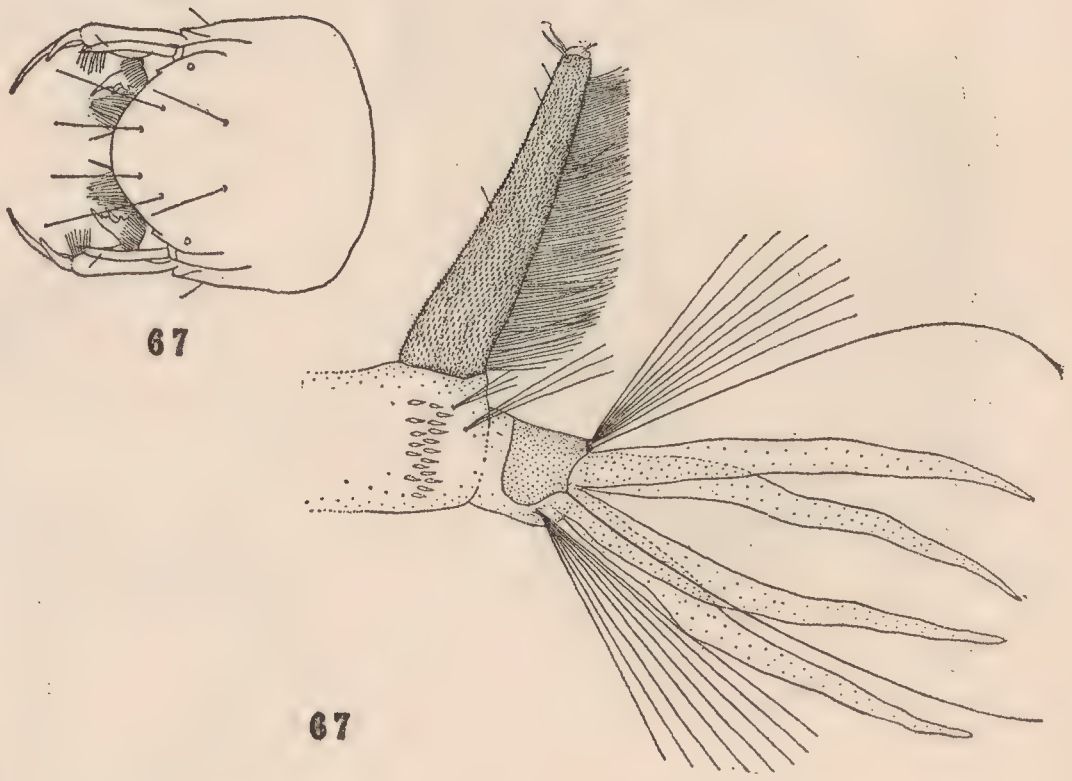

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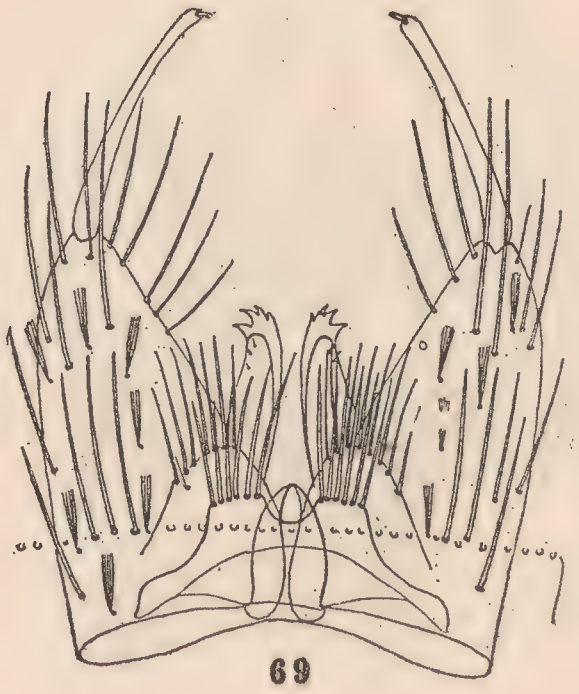
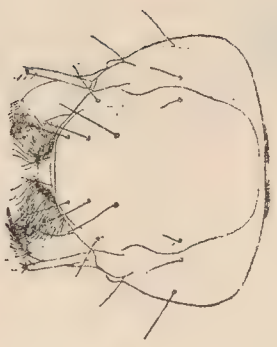


69

65. *Goeldia fluviatilis* Theob., male hypopygium
66. *Goeldia leucopus* D. and K., male hypopygium
67. *Goeldia rapax* D. and K., male hypopygium and larva
68. *Goeldia pallidiventer* Theob., male hypopygium
69. *Goeldia lampropus* H., D. and K., male hypopygium

70



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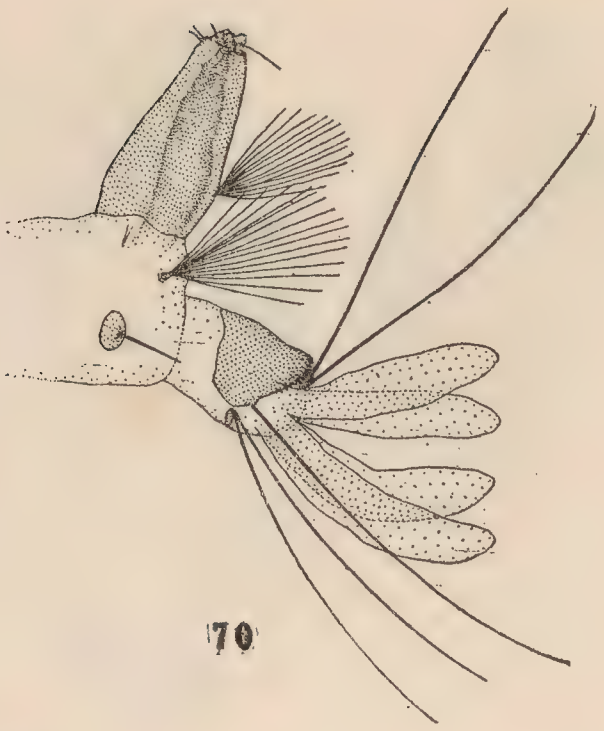

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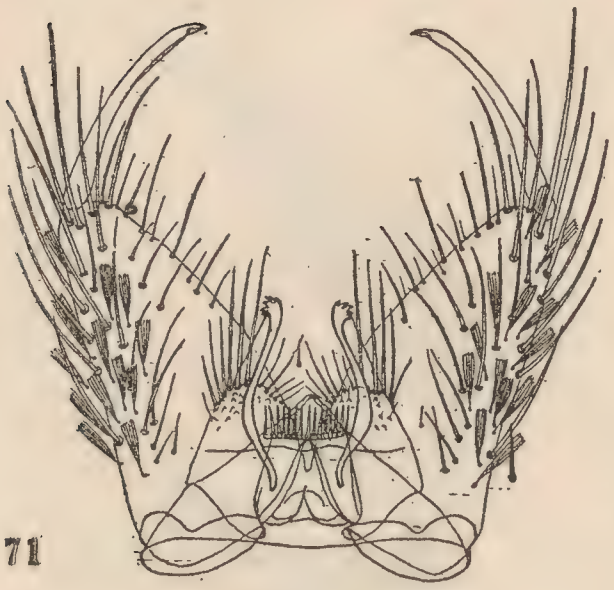

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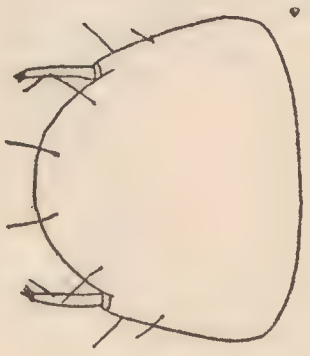

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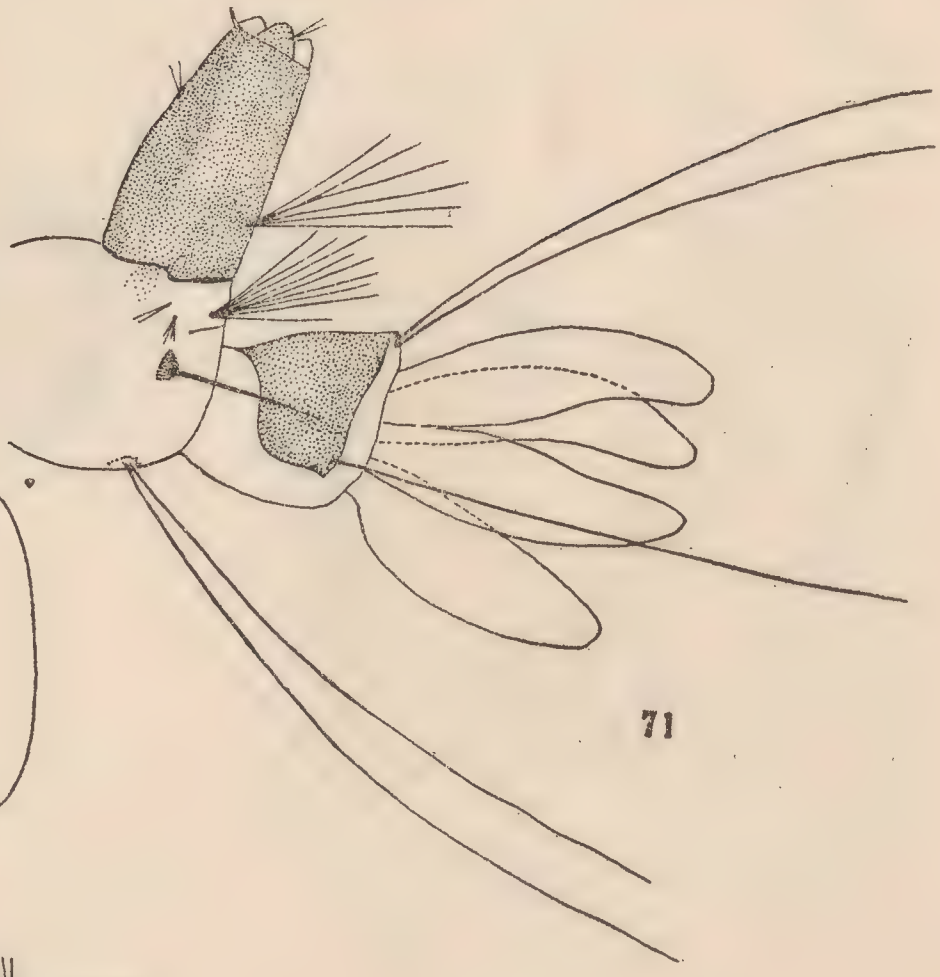

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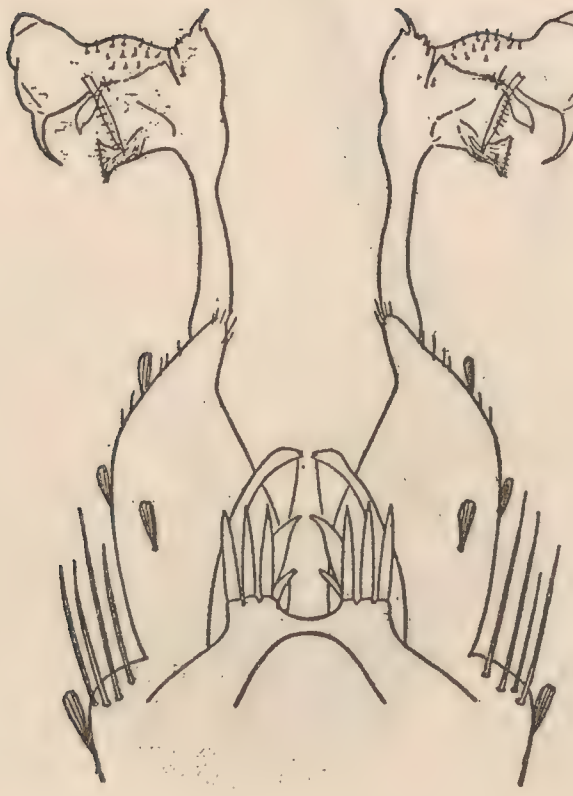

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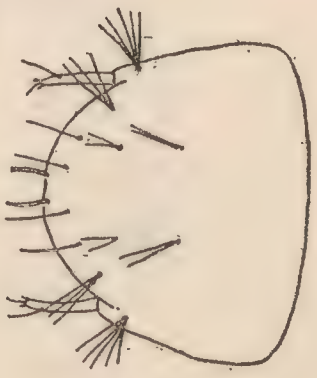

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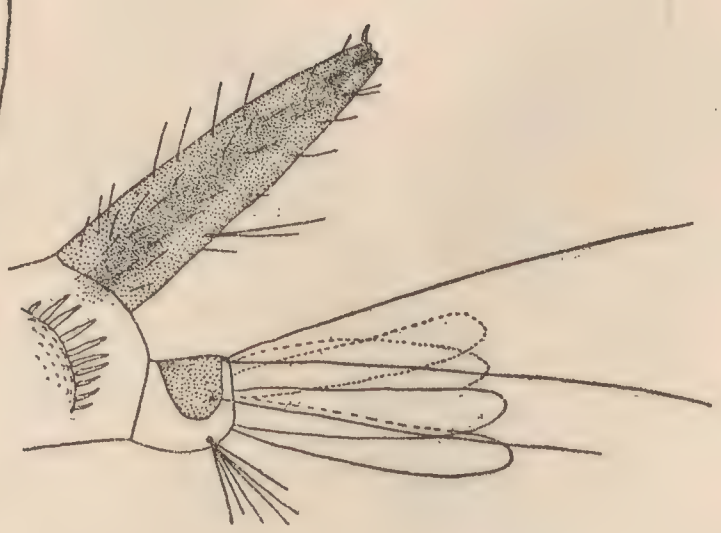
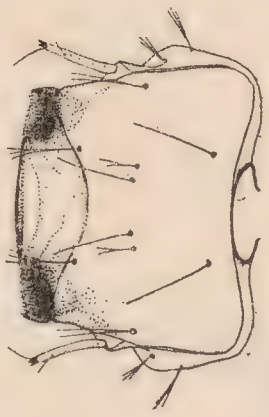


72

70. *Joblotia compressa* Theob., male hypopygium and larva
71. *Joblotia digitata* Rond., male hypopygium and larva
72. *Wyeomyia bourrouli* Pery., male hypopygium and larva

73



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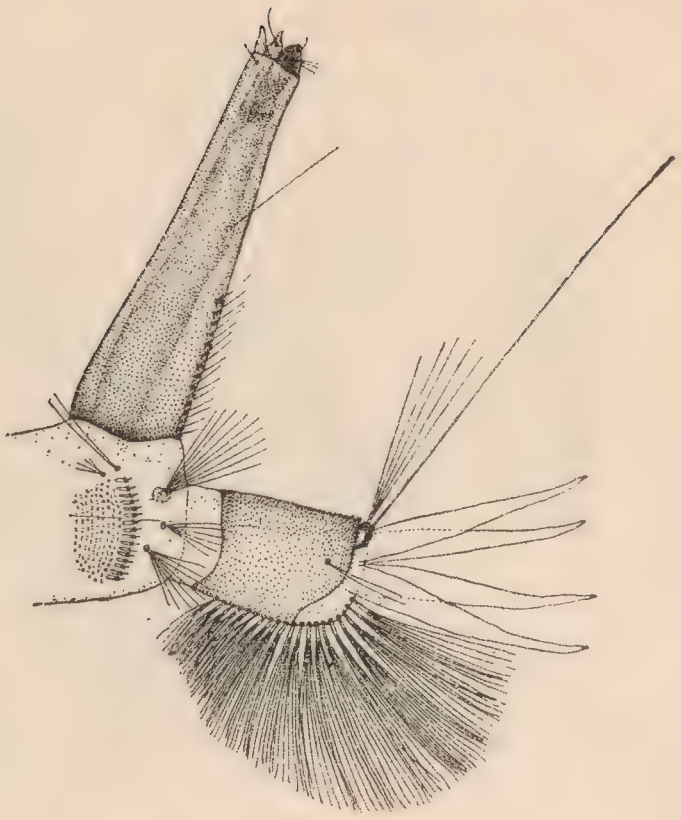

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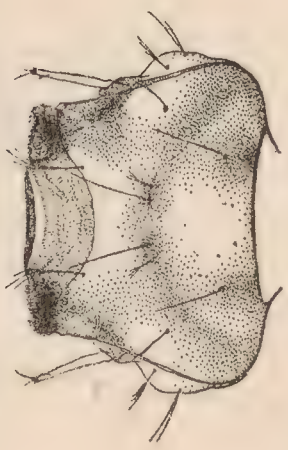

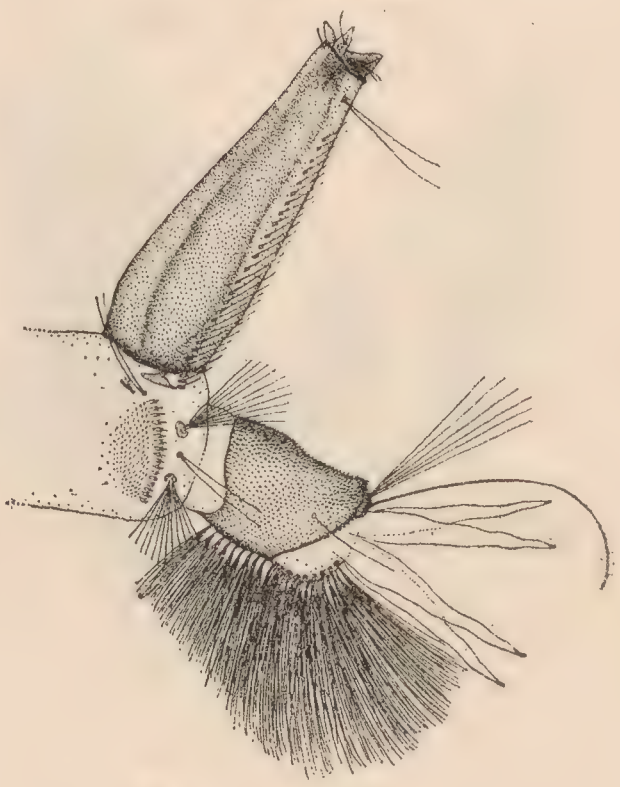

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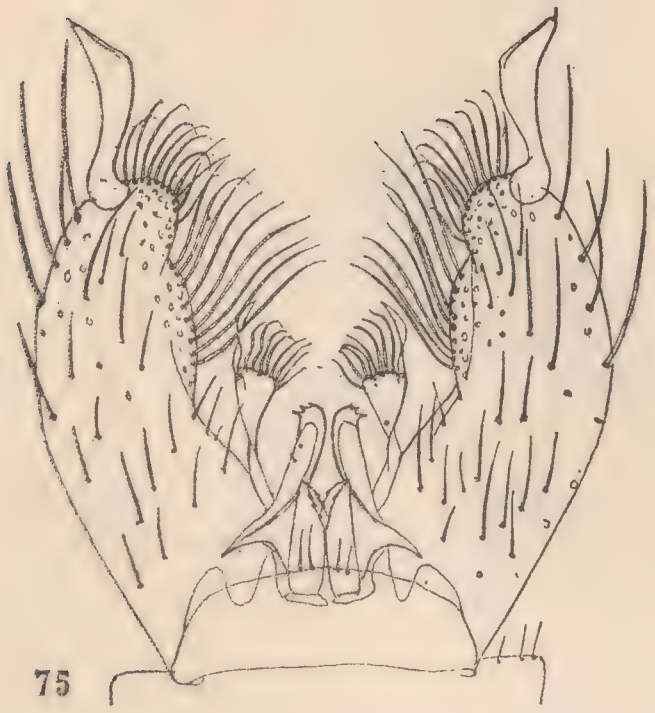

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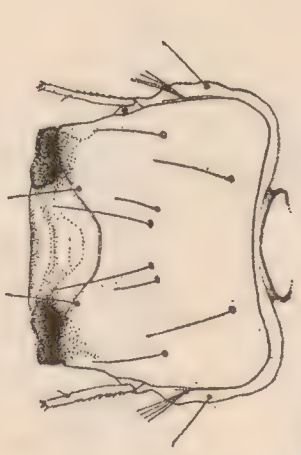

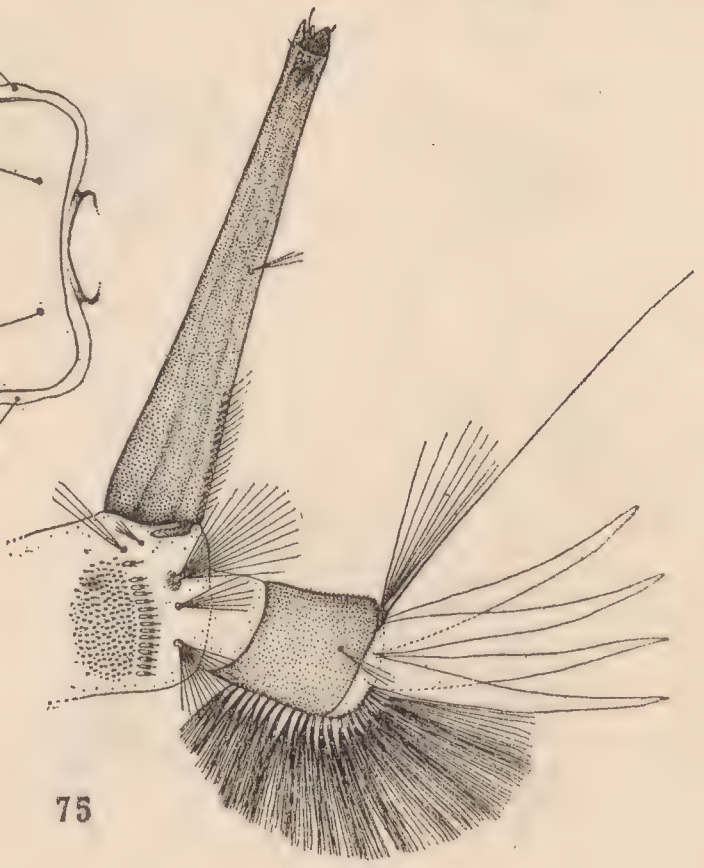

75

73. *Psorophora howardii* Coq., male hypopygium and larva
74. *Psorophora cilipes* Fab., male hypopygium and larva
75. *Psorophora lineata* Humb., male hypopygium and larva

76

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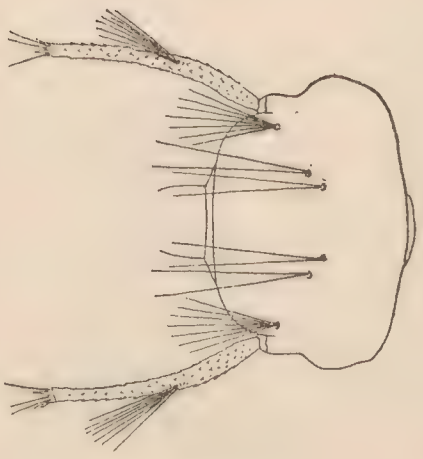
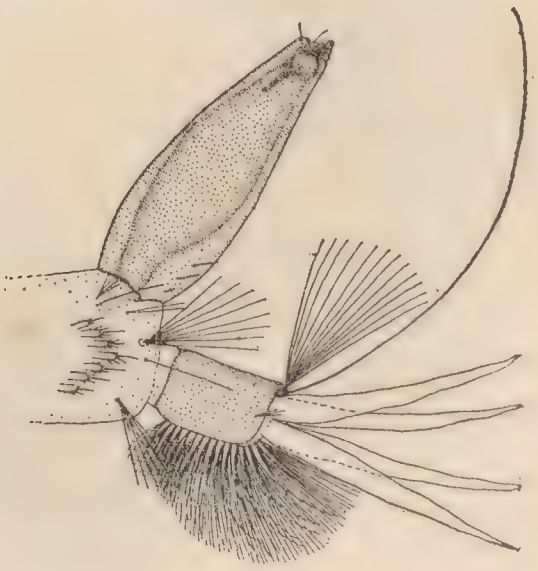


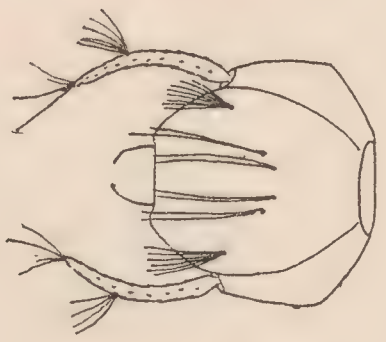


78

76. *Psorophora ciliata* Fab., male hypopygium and larva
77. *Psorophora pallescens* Edw., male hypopygium
78. *Psorophora ferox* Humb., male hypopygium and larva
80. *Psorophora champerico* D. and K., male hypopygium

79

79



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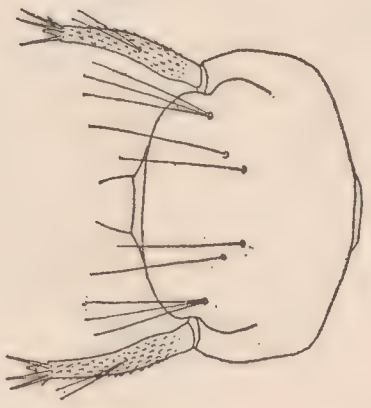

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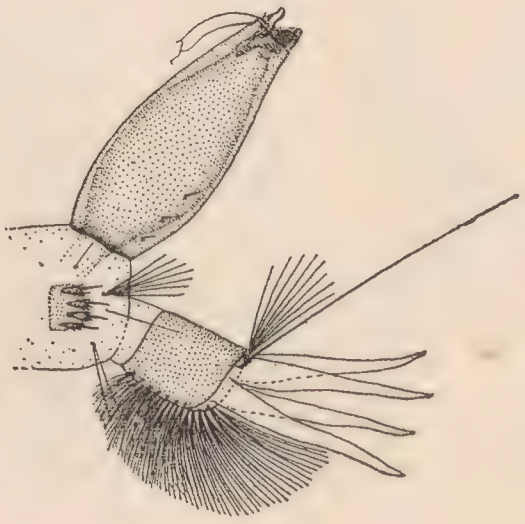
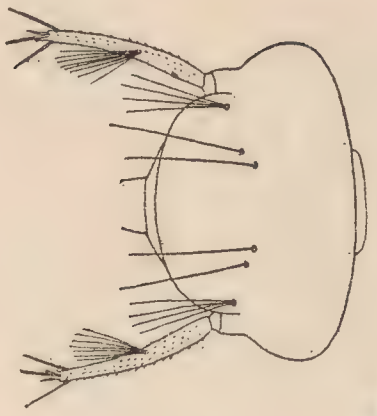


79. *Psorophora lutzii* Theob., male hypopygium and larva
81. *Psorophora varipes* Coq., male hypopygium
82. *Psorophora coffini* D. and K., male hypopygium
83. *Psorophora cyanescens* Coq., male hypopygium and larva

84



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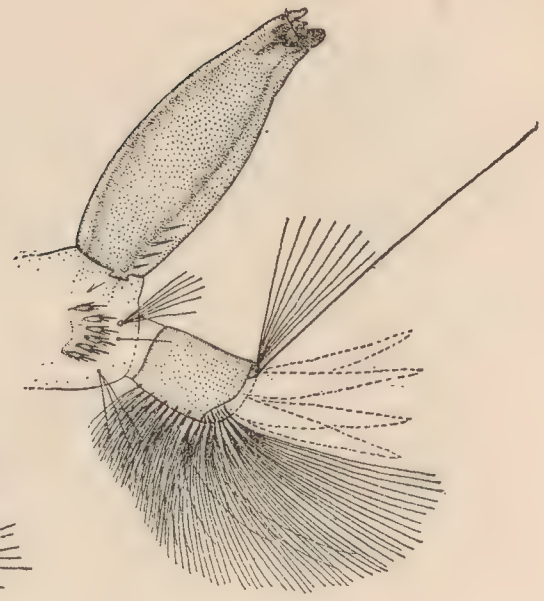

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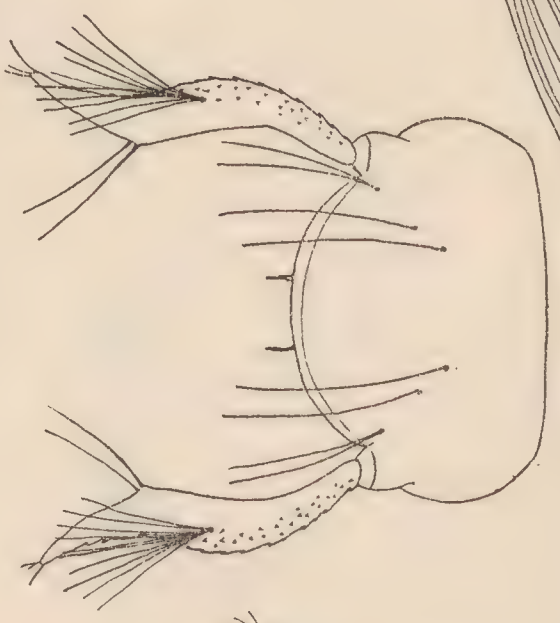

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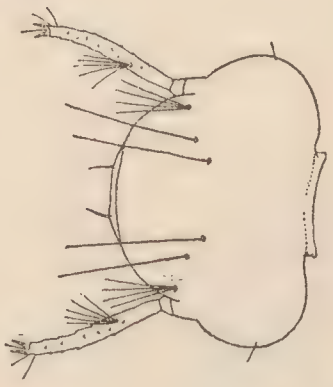

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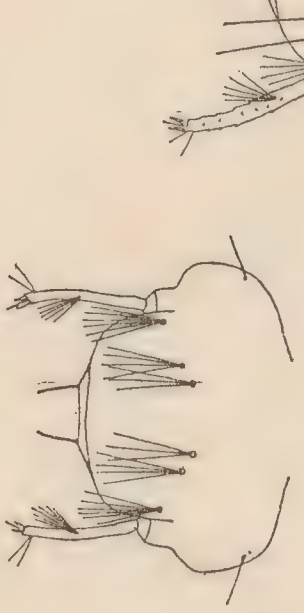
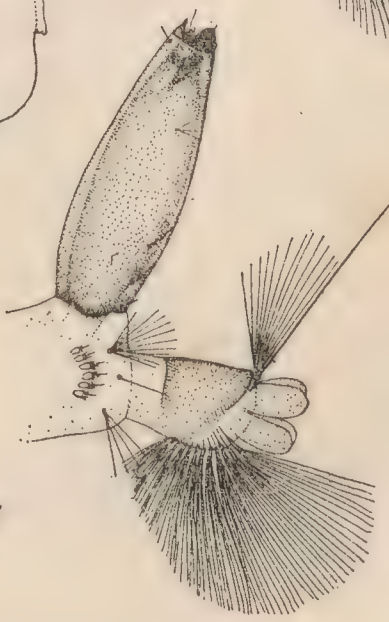
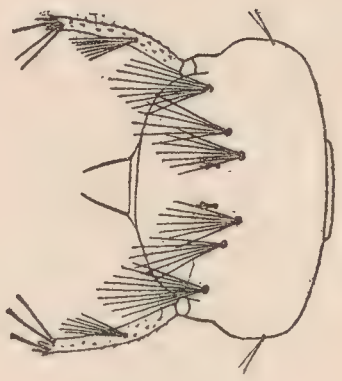
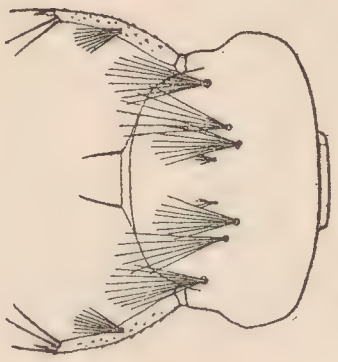


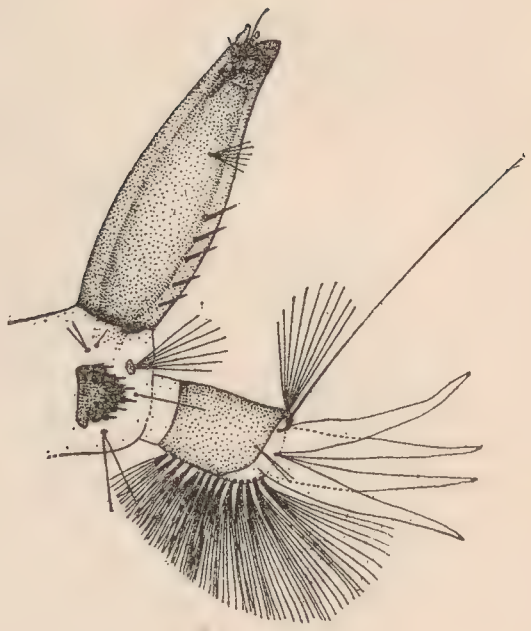


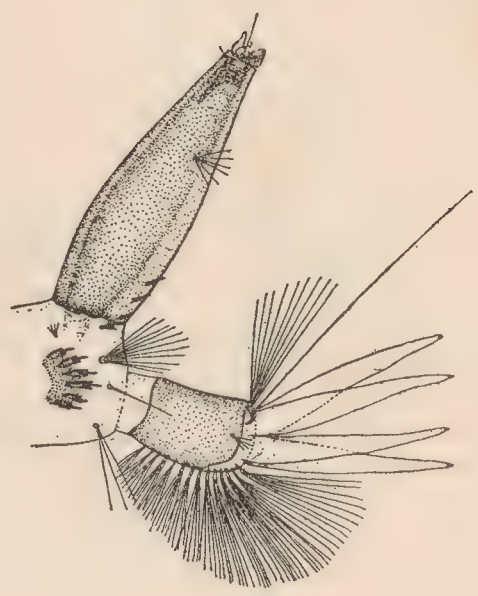
87

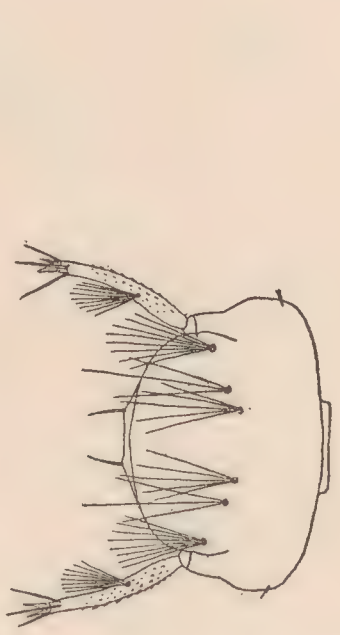
84. *Psorophora signipennis* Coq., male hypopygium and larva
85. *Psorophora discolor* Coq., male hypopygium and larva
86. *Psorophora pygmæa* Theob., male hypopygium and larva
87. *Psorophora insularius* D. and K., male hypopygium and larva

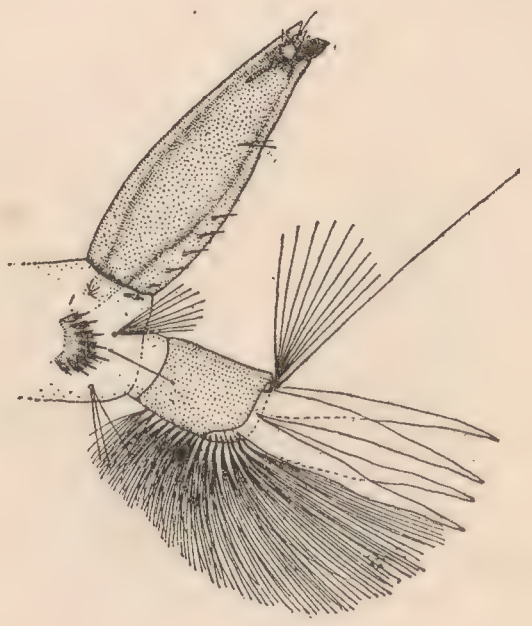






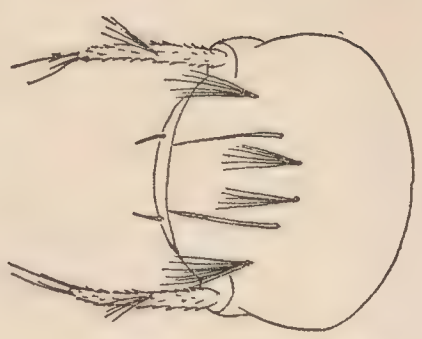






88. *Psorophora confinnis* Lynch A., male hypopygium
89. *Psorophora tolteca* D. and K., male hypopygium and larva
90. *Psorophora jamaicensis* Theob., male hypopygium and larva
91. *Psorophora columbiæ* D. and K., male hypopygium and larva

92



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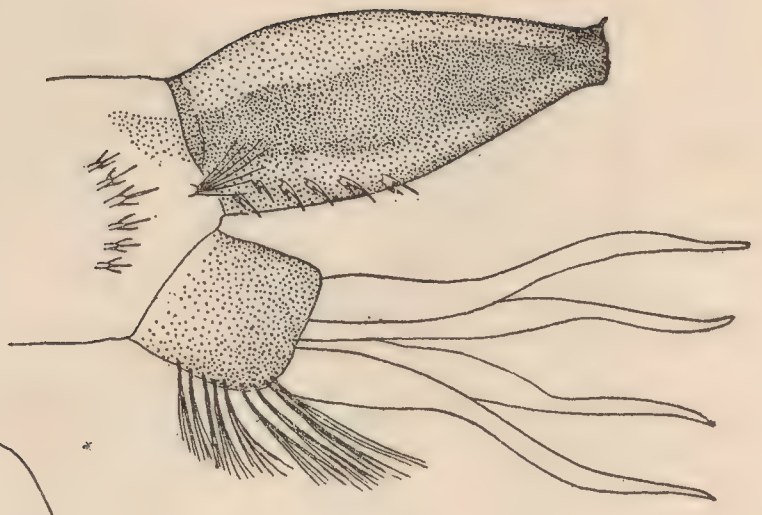

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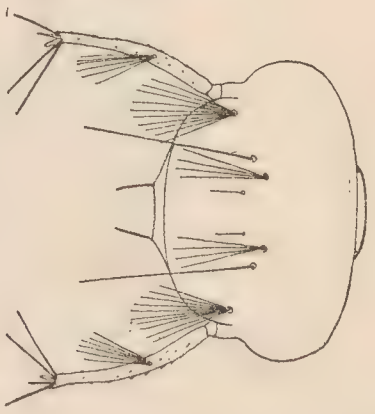

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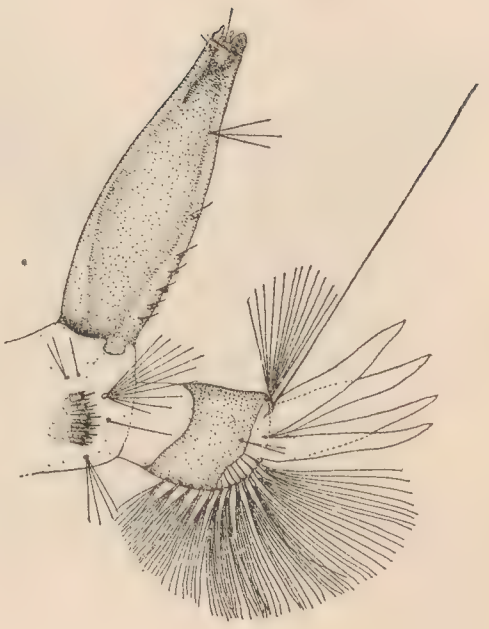

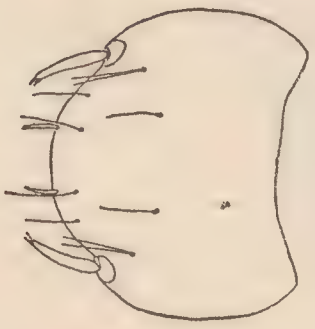

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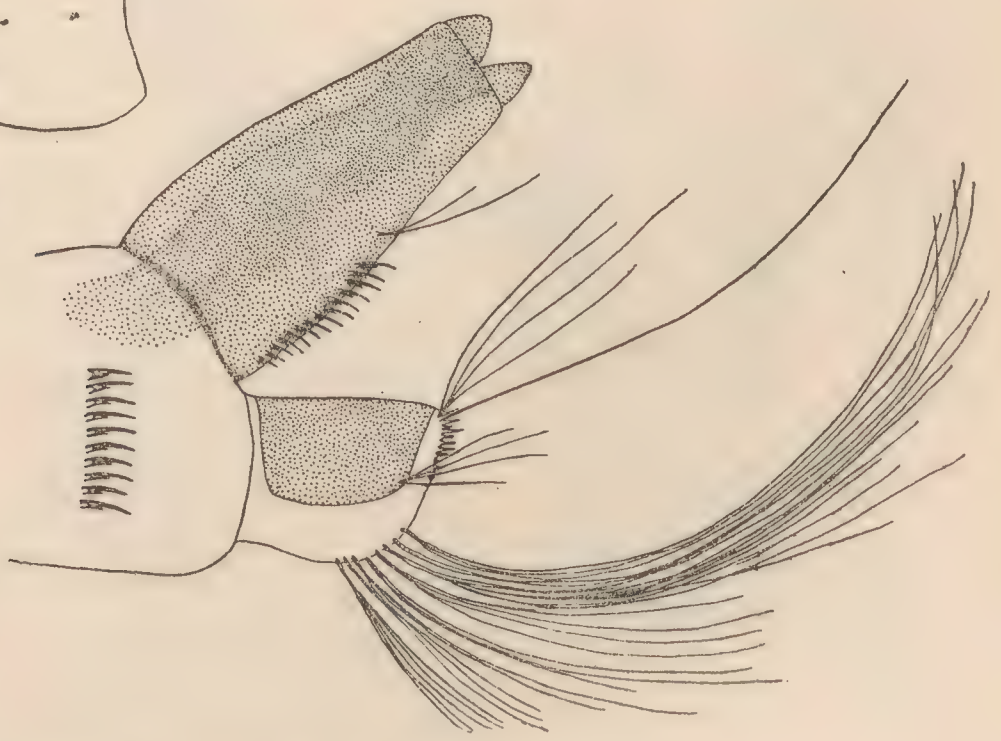
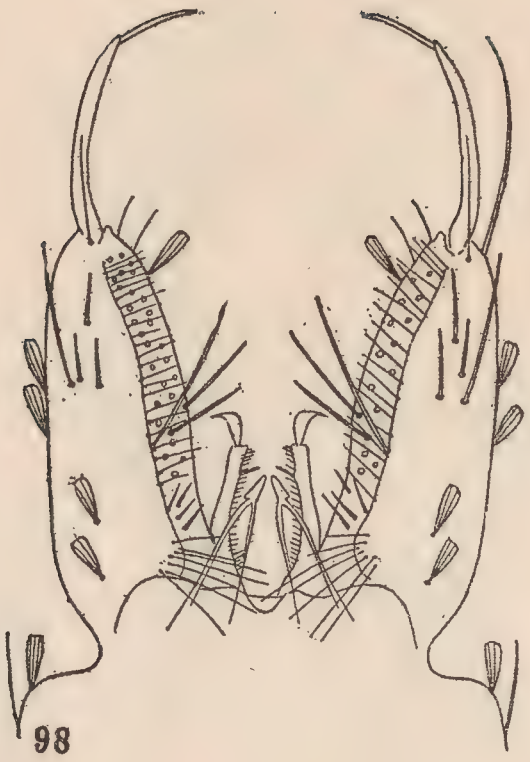


94

92. *Psorophora cingulata* Fab., male hypopygium and larva
93. *Psorophora infinis* D. and K., male hypopygium and larva
94. *Hæmagogus equinus* Theob., male hypopygium and larva

95



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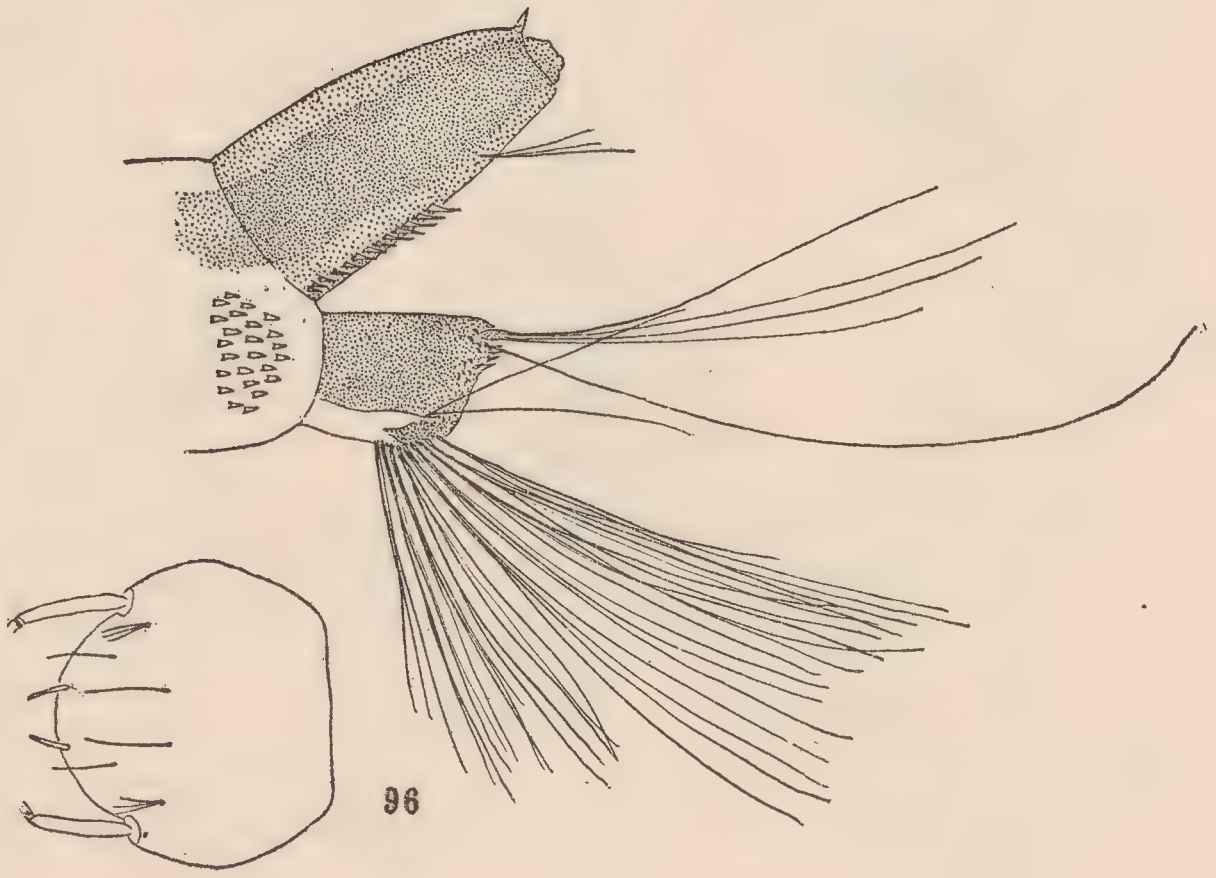

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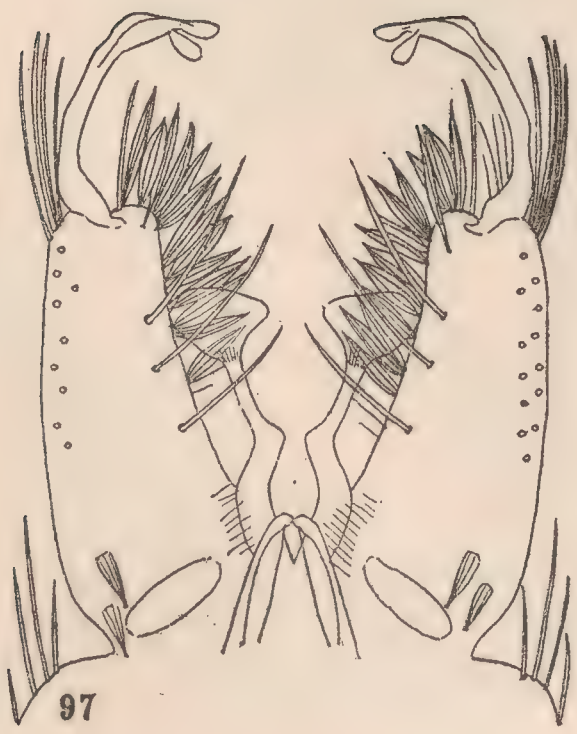

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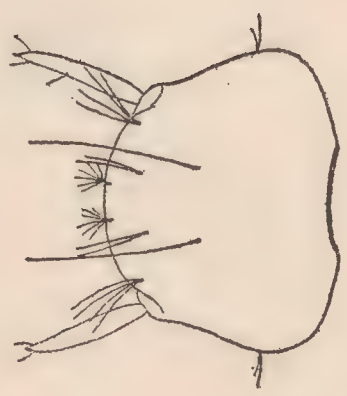
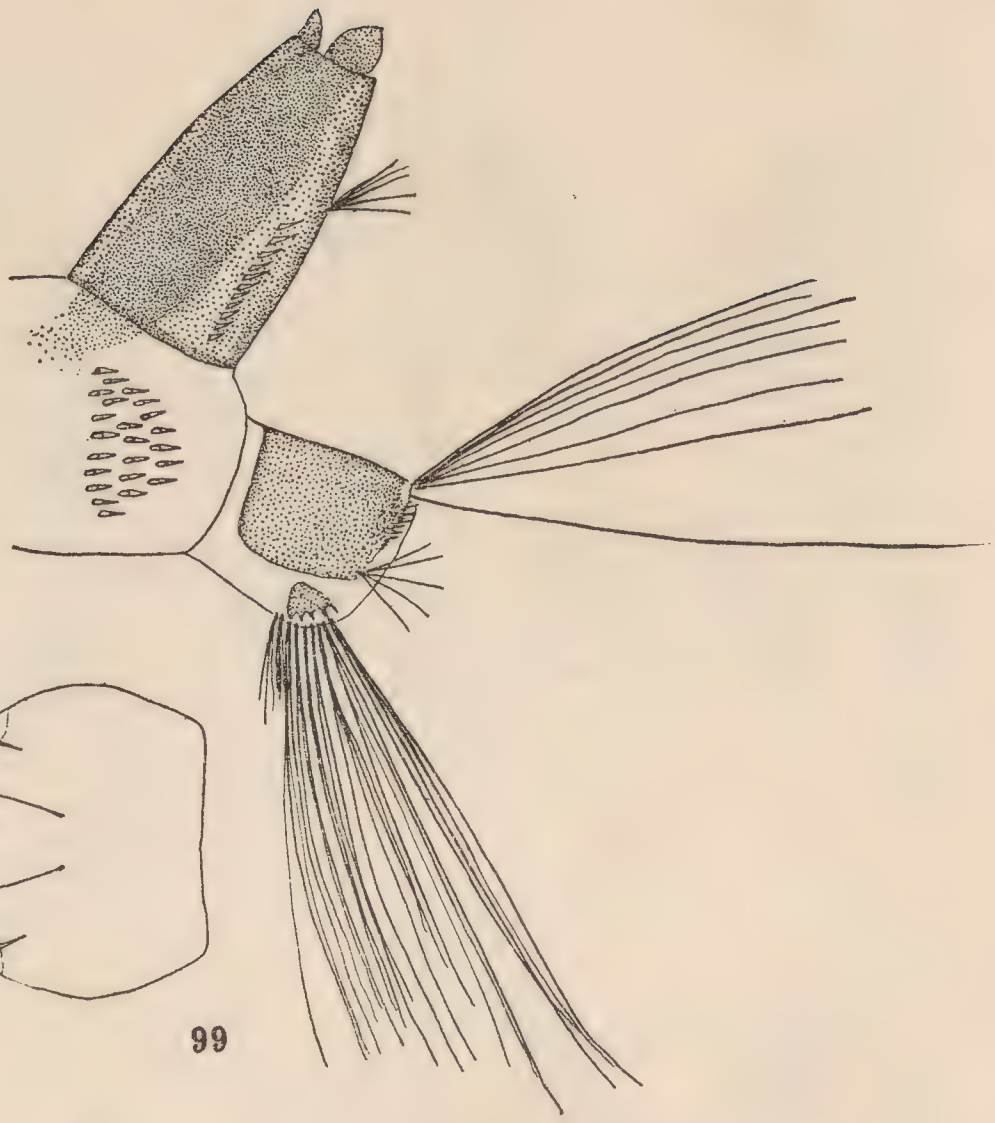


97

95. *Hæmagogus panarchys* Dyar, male hypopygium
96. *Hæmagogus regalis* D. and K., male hypopygium and larva
97. *Hæmagogus iridicolor* Dyar, male hypopygium and larva
98. *Hæmagogus anastationis* Dyar, male hypopygium

99



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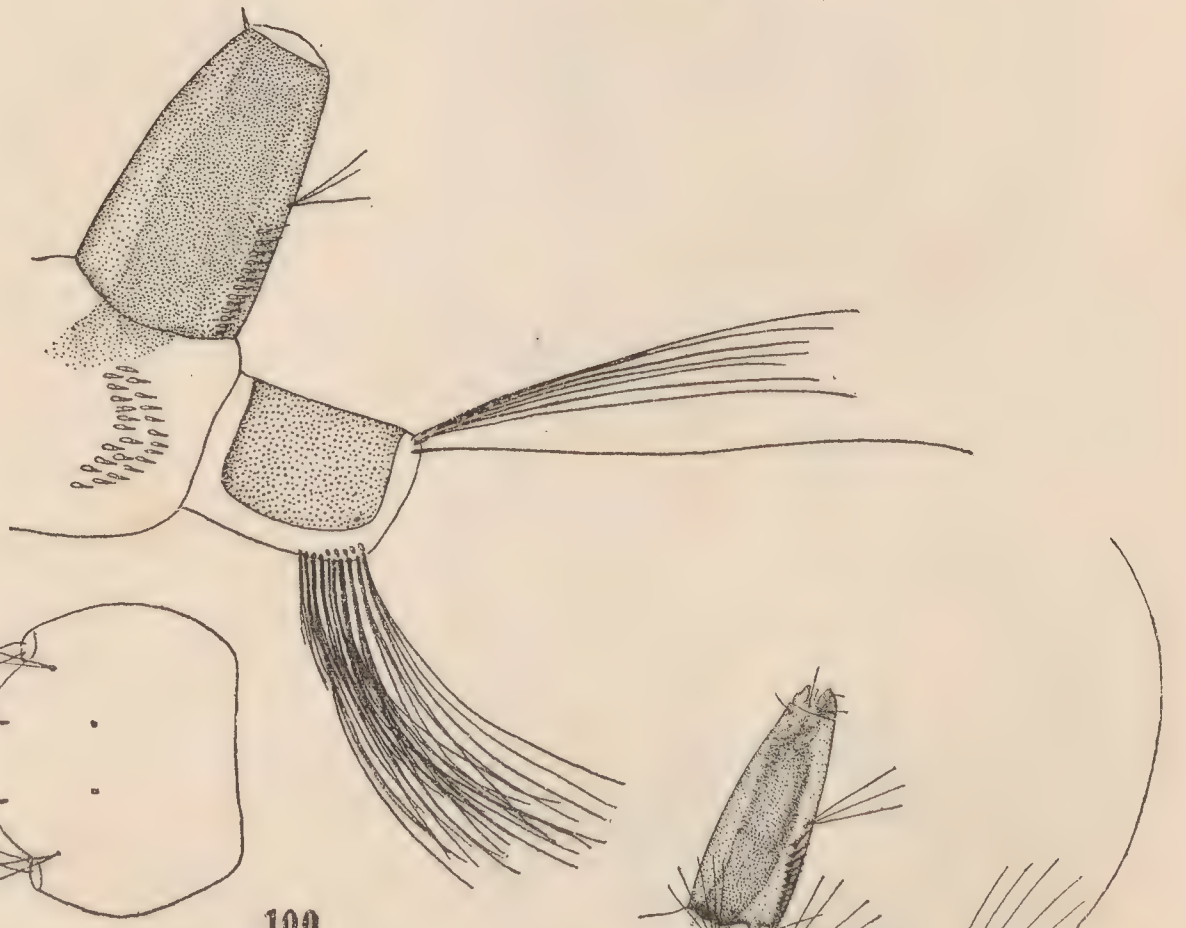

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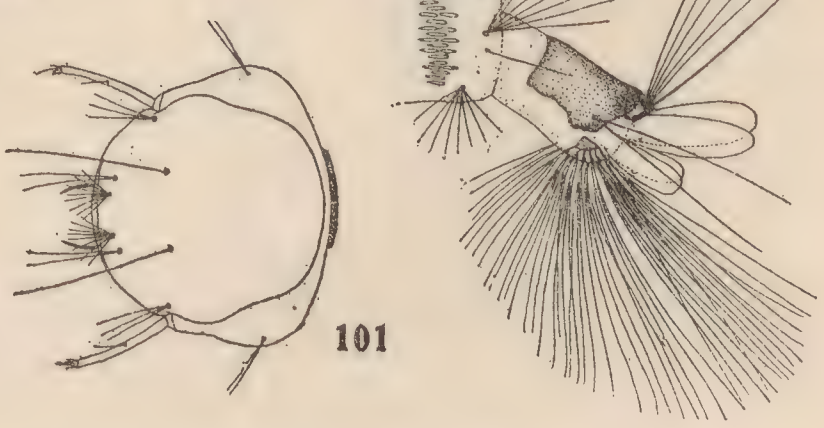


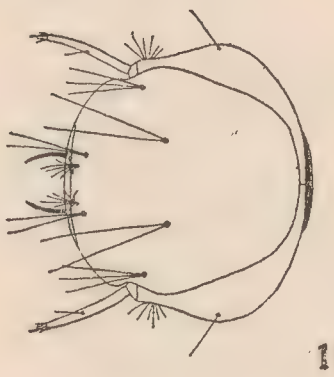
101

99. *Hæmagogus lucifer* H., D. and K., male hypopygium and larva
100. *Hæmagogus chalcospilans* Dyar, male hypopygium and larva
101. *Hæmagogus argyromeris* D. and L., male hypopygium and larva

102

104

103



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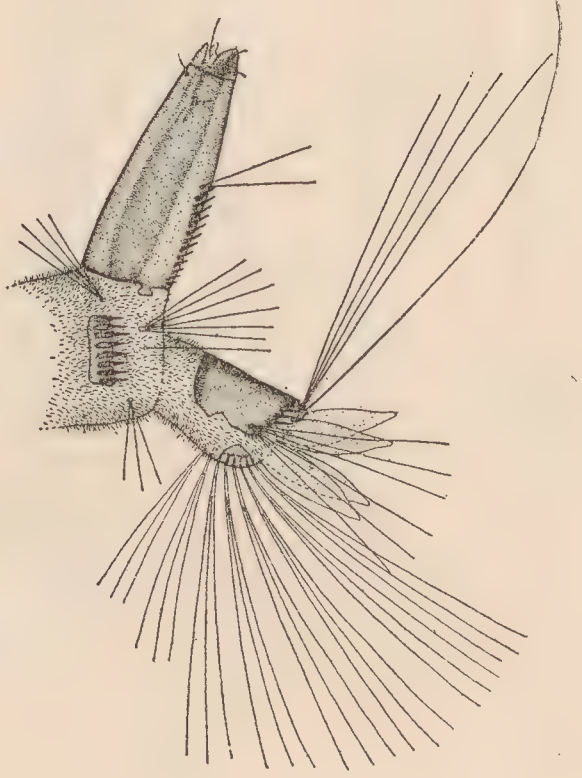

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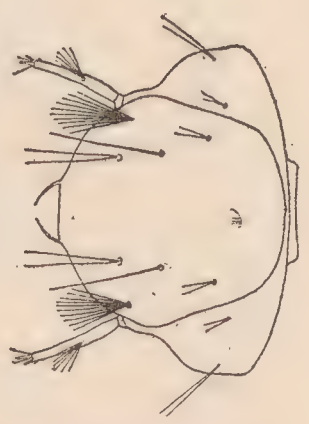

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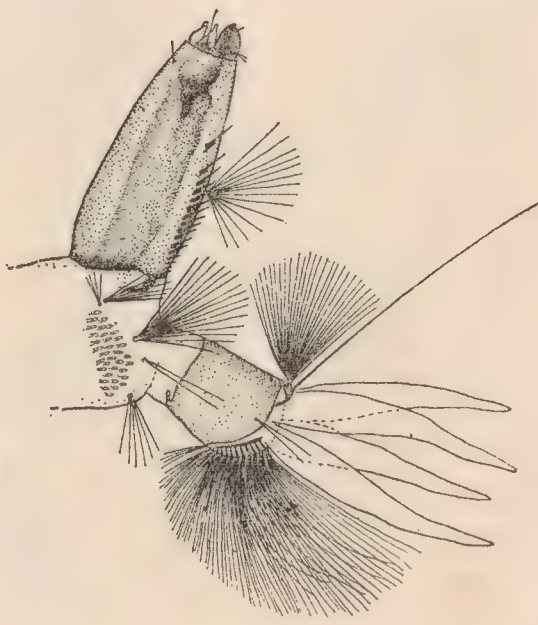
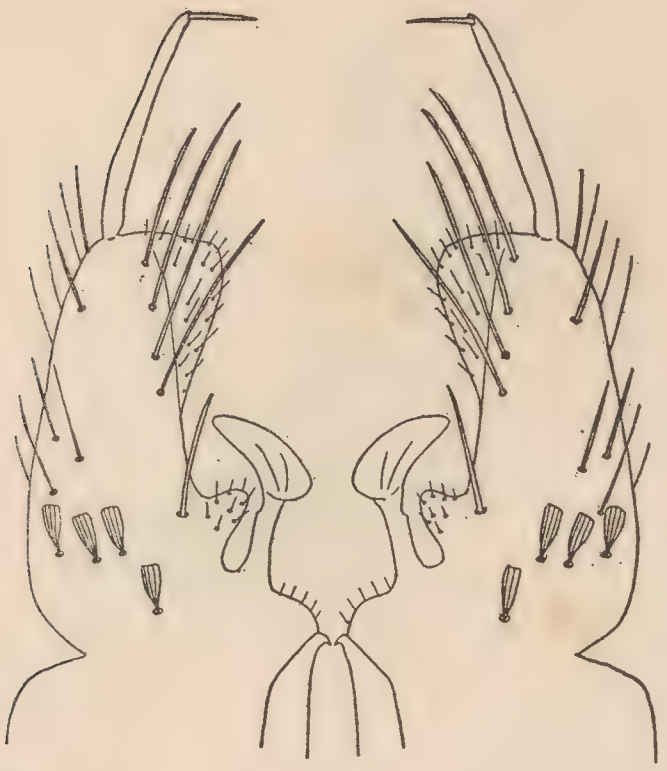


102. *Hæmagogus celeste* D. and N. T., male hypopygium
103. *Hæmagogus janthinomya* Dyar, male hypopygium and larva
104. *Hæmagogus albomaculatus* Theob., male hypopygium
106. *Aëdes fulvus* Wied., male hypopygium and larva



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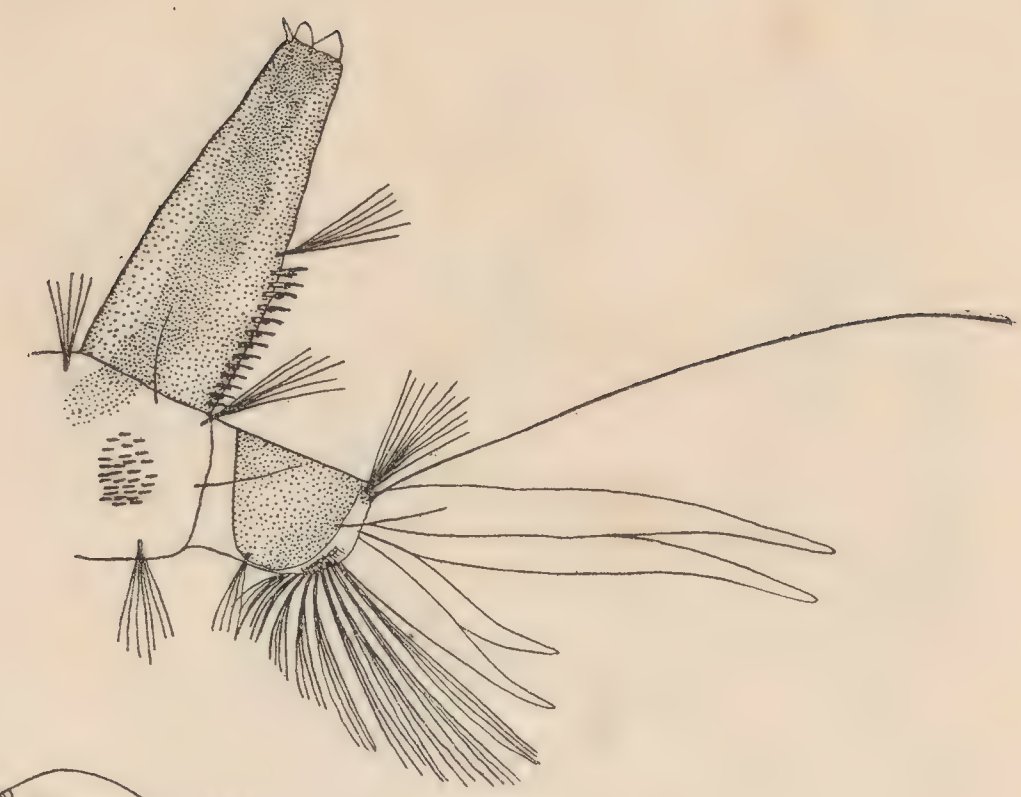

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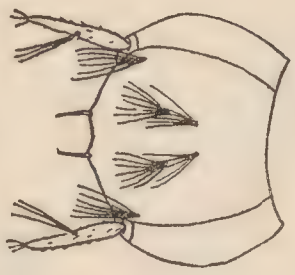

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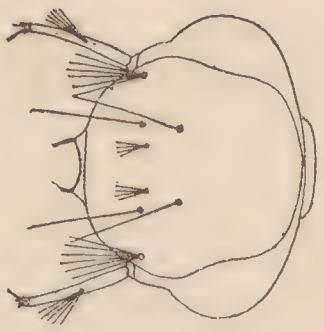
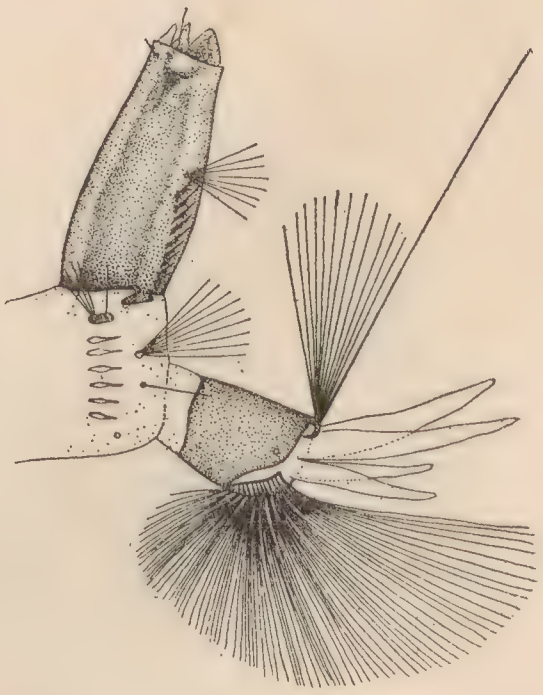
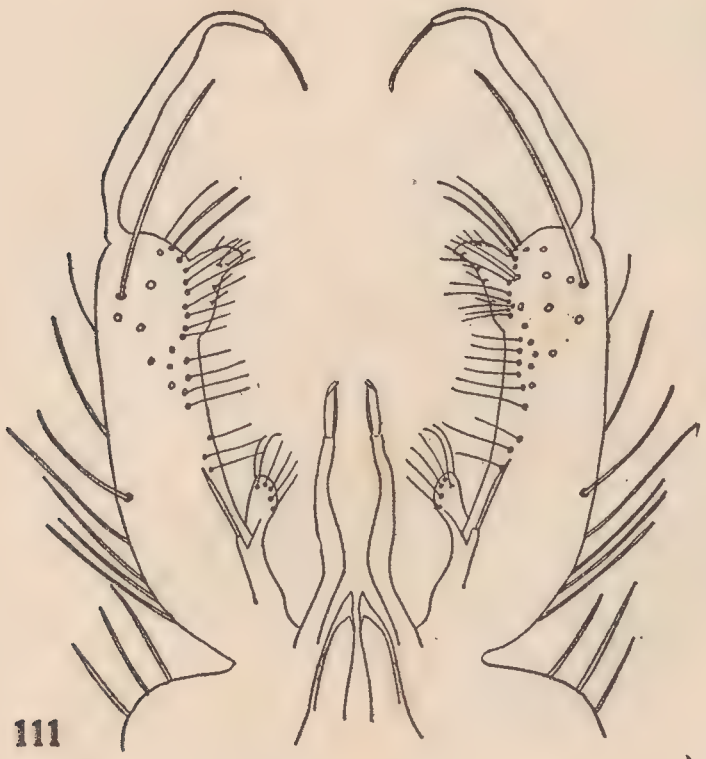




110

105. *Aëdes leucocelænus* D. and S., male hypopygium
107. *Aëdes hortator* D. and K., male hypopygium and larva
108. *Aëdes hastatus* Dyar, male hypopygium
110. *Aëdes atlanticus* D. and K., male hypopygium and larva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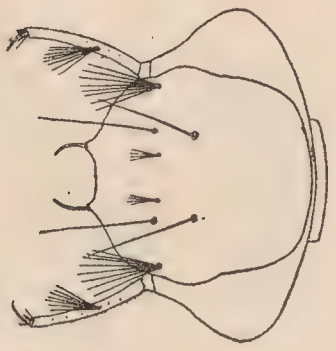

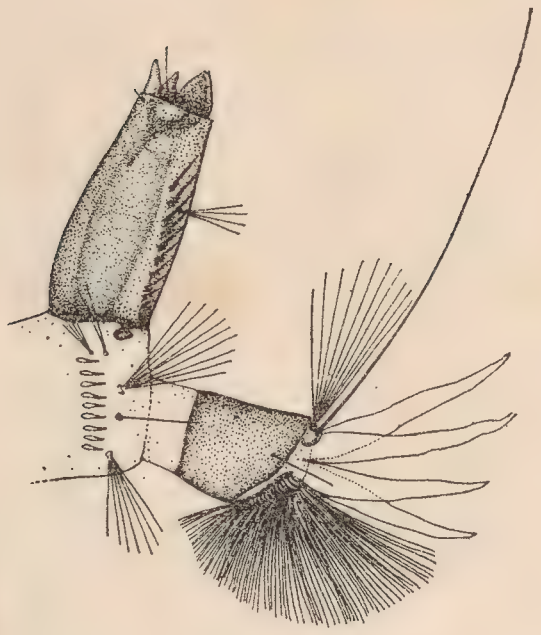
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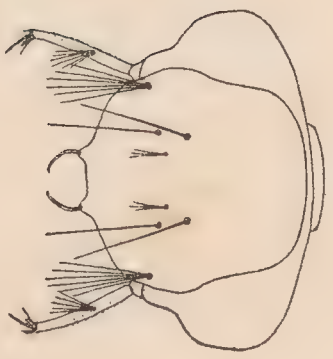
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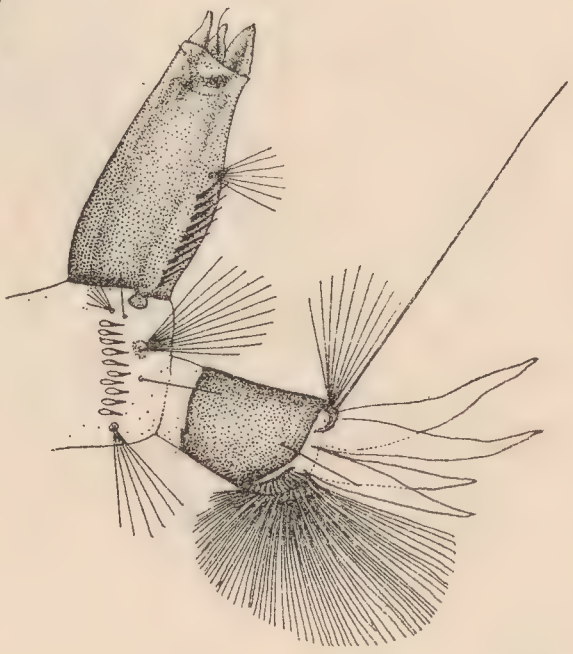

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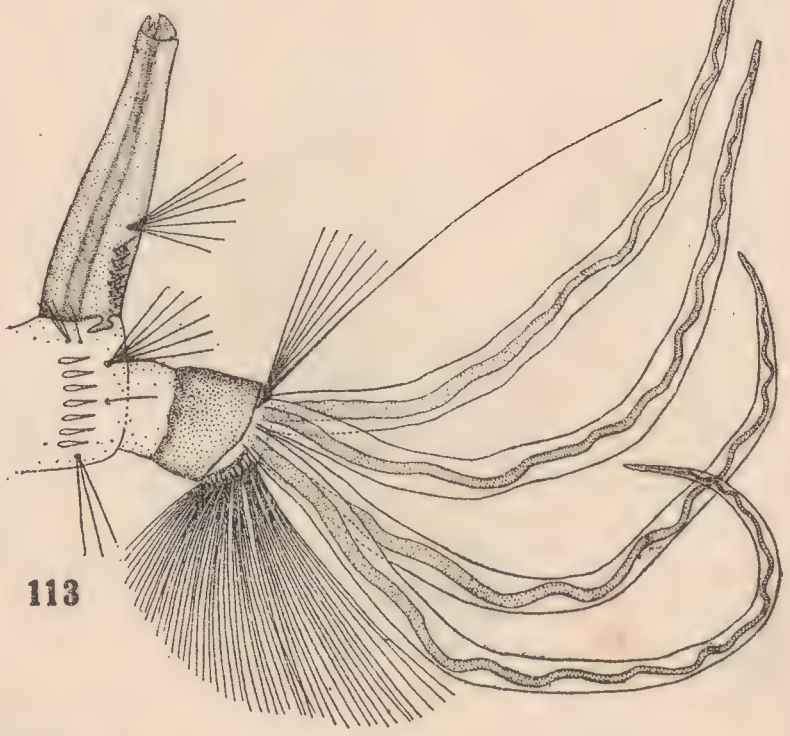
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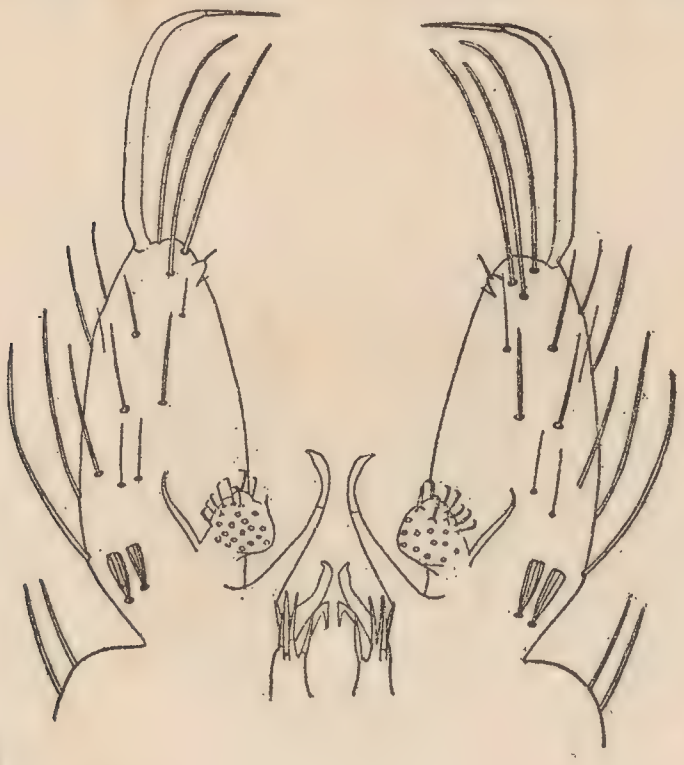
109. *Aëdes nubilus* Theob., male hypopygium
111. *Aëdes tormentor* D. and K., male hypopygium and larva
112. *Aëdes serratus* Theob., male hypopygium and larva
113. *Aëdes dupreei* Coq., male hypopygium and larva



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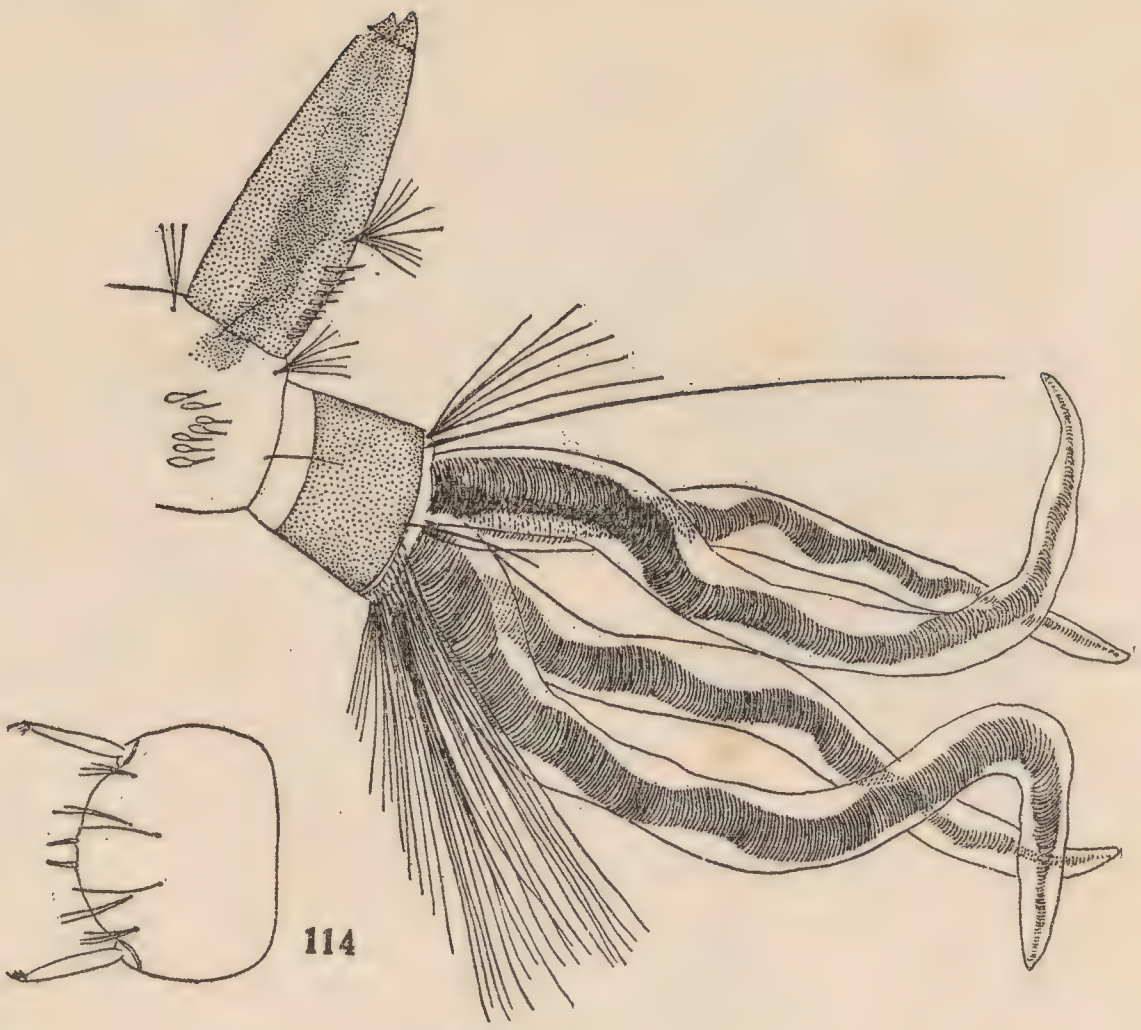

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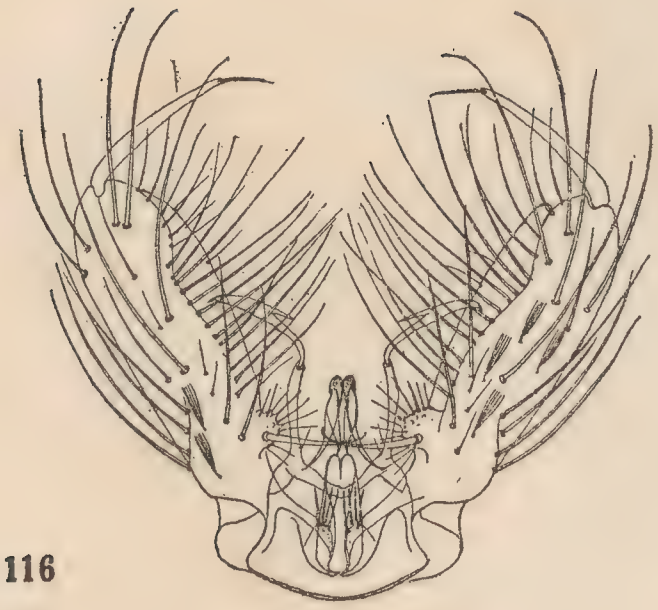

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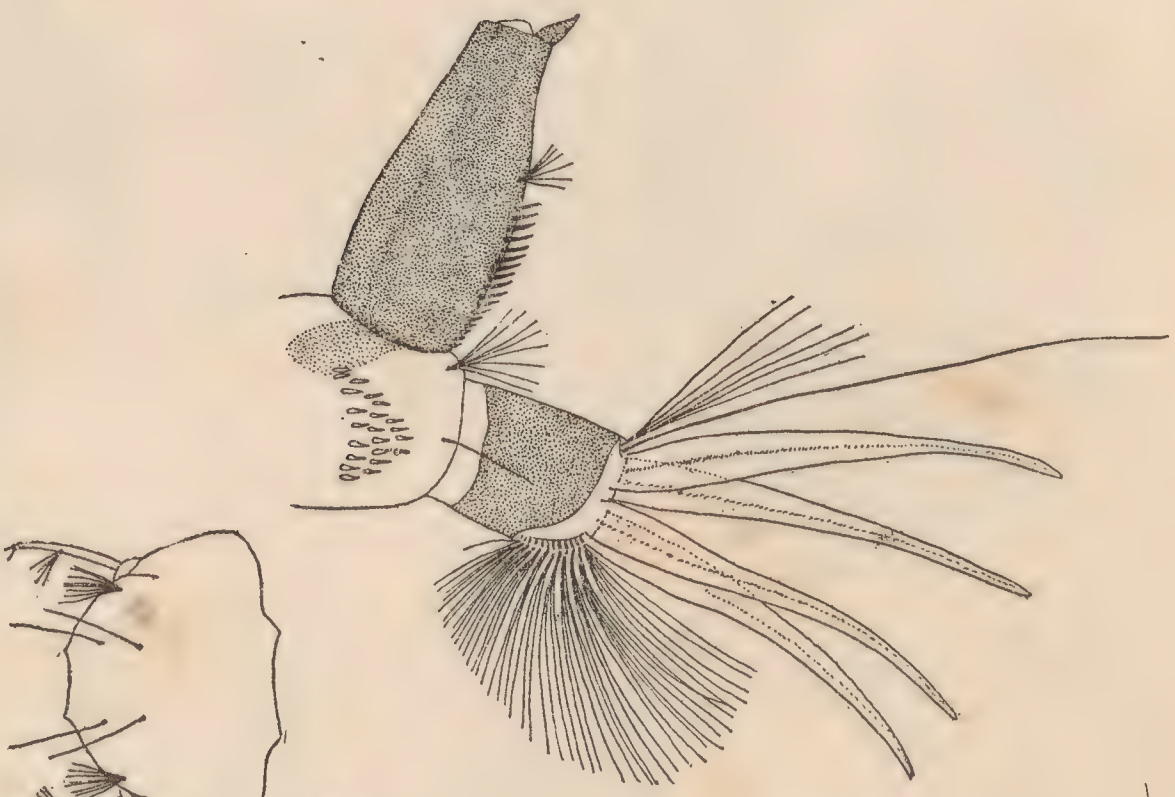

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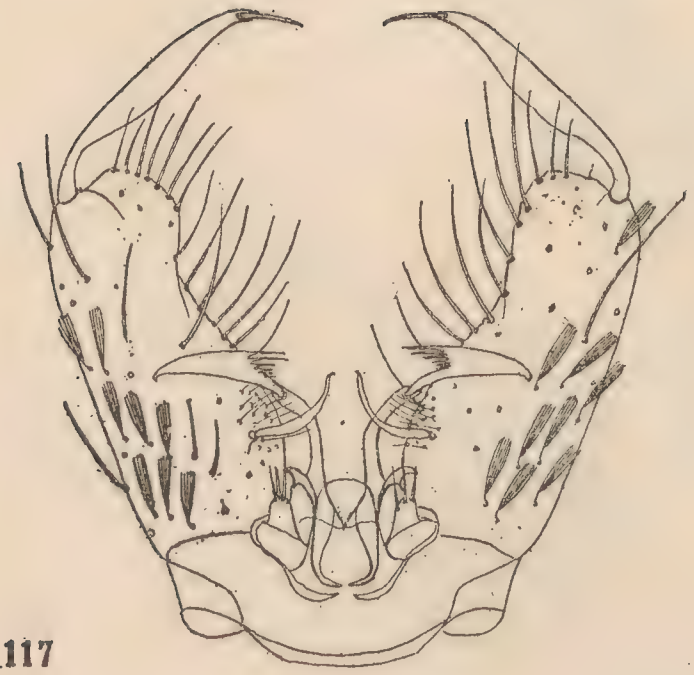

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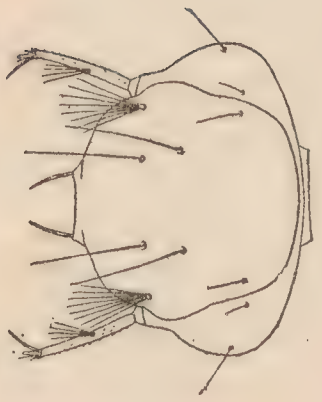

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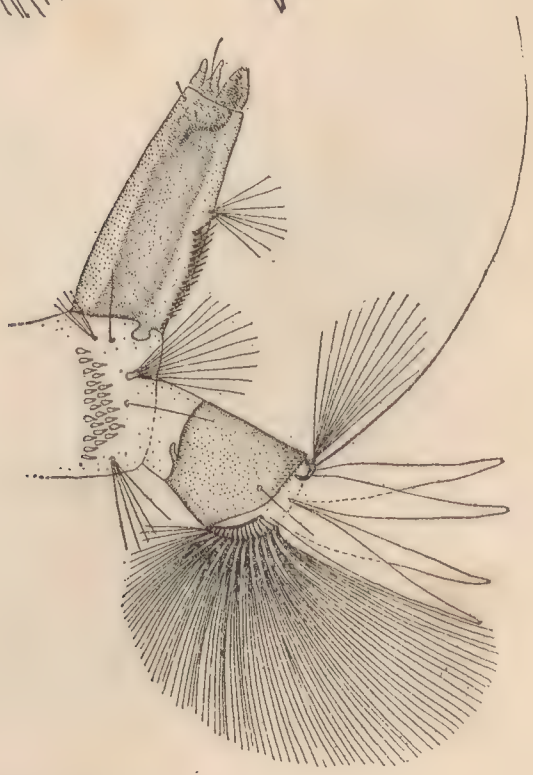
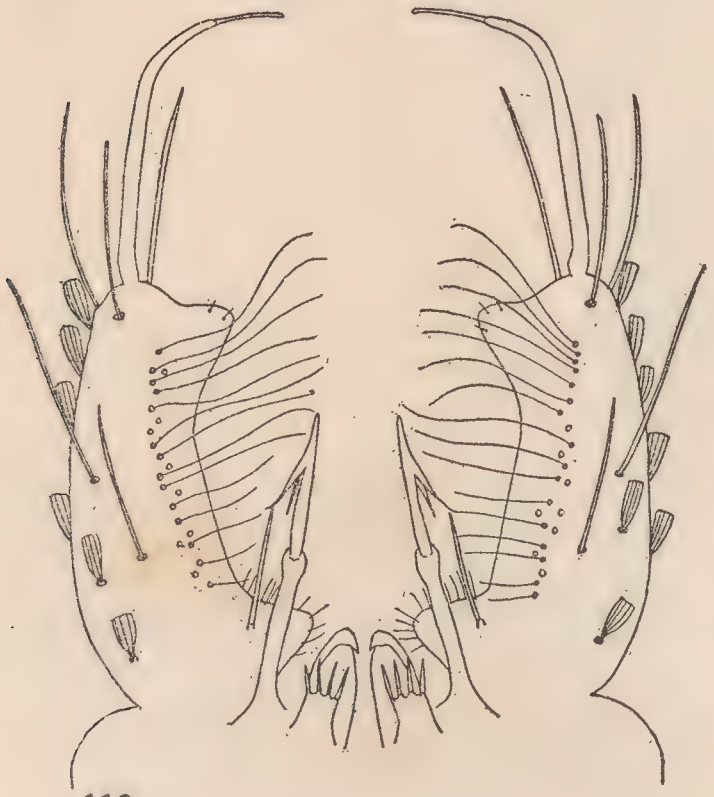


114. *Aëdes eucephalæus* Dyar, male hypopygium and larva
116. *Aëdes trivittatus* Coq., male hypopygium and larva
117. *Aëdes angustivittatus* D. and K., male hypopygium and larva

115



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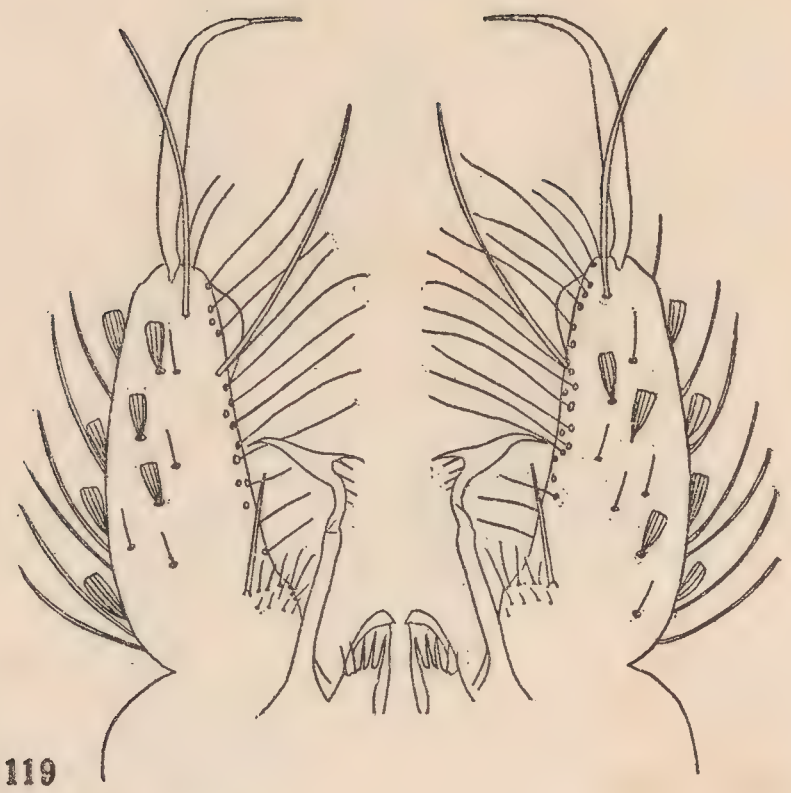

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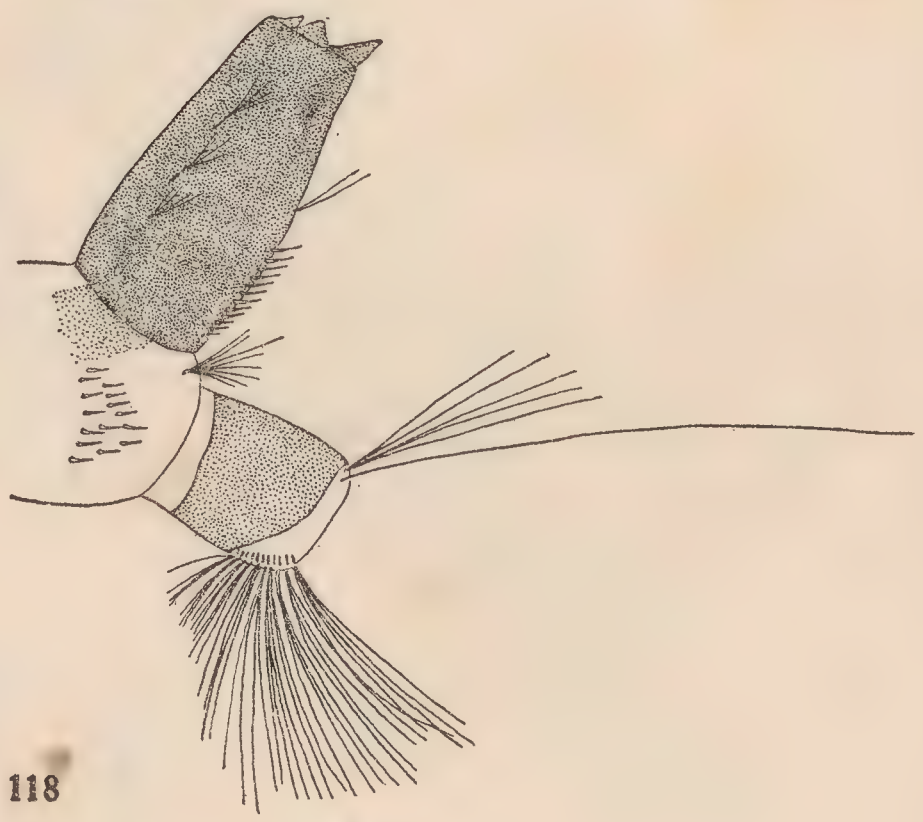

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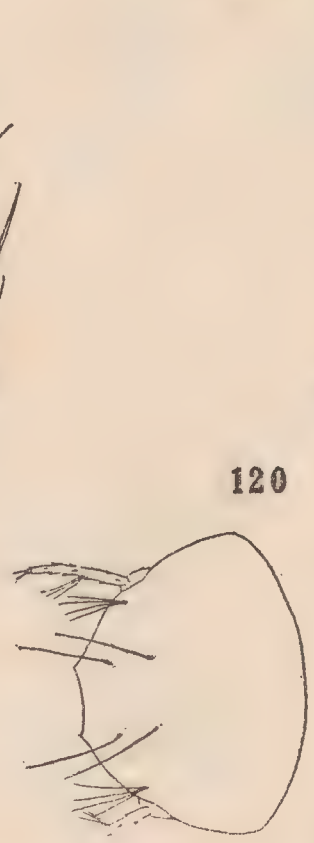
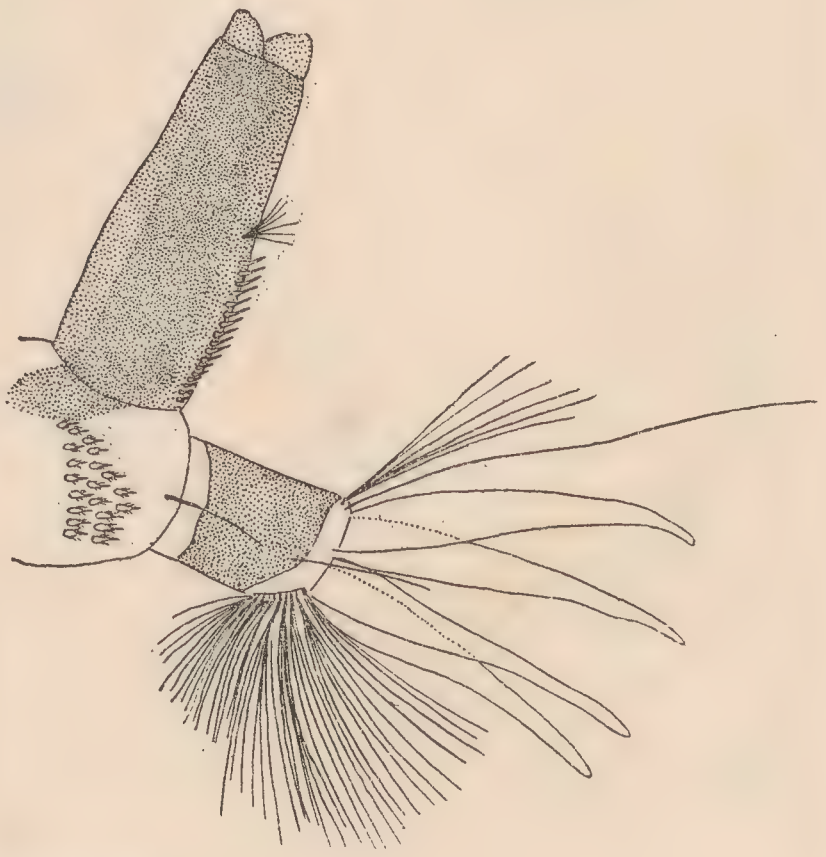
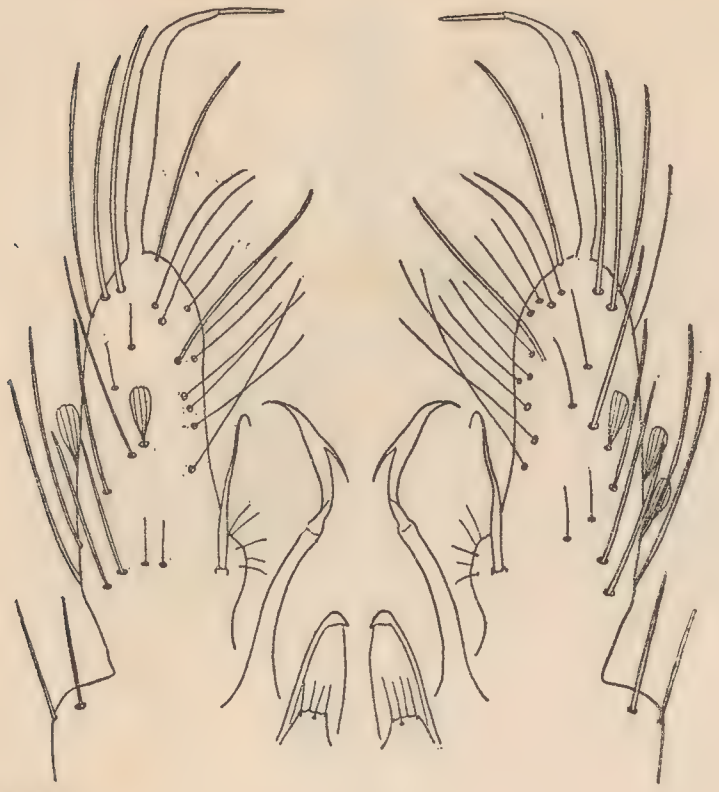




120

115. *Aëdes oligopistus* Dyar, male hypopygium
118. *Aëdes crinifer* Theob., male hypopygium and larva
119. *Aëdes condolescens* D. and K., male hypopygium
120. *Aëdes infirmatus* D. and K., male hypopygium and larva



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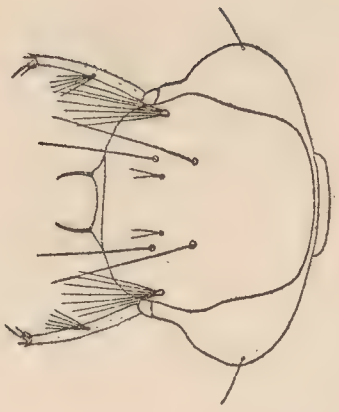

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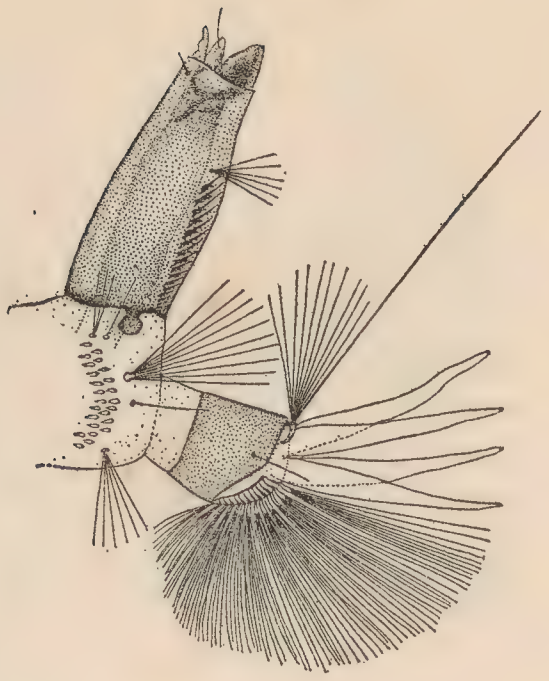

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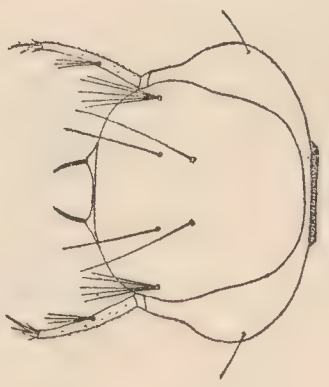

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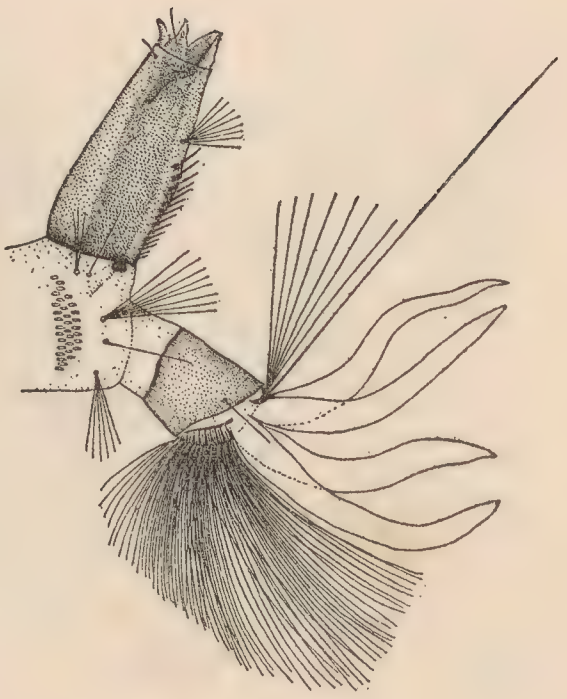

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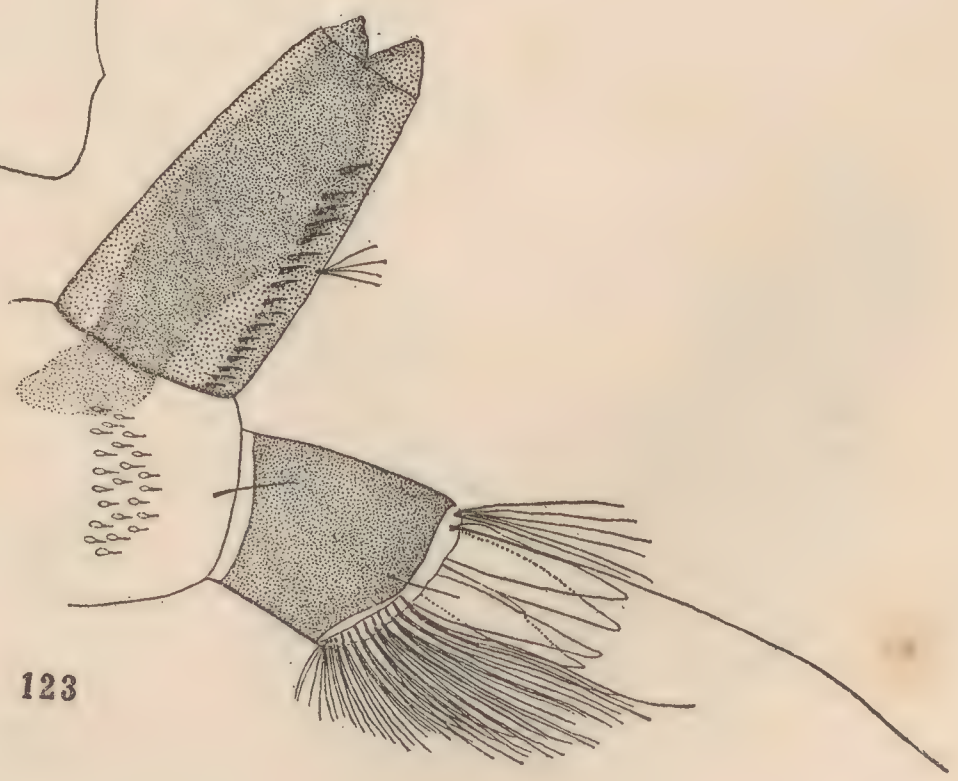
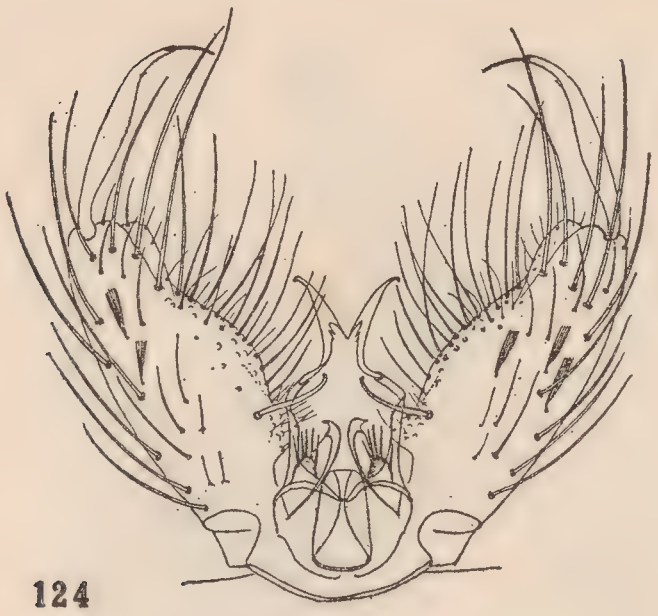
123



123

121. *Aëdes euplocamus* D. and K., male hypopygium and larva
122. *Aëdes scapularis* Rond., male hypopygium and larva
123. *Aëdes thelcter* Dyar, male hypopygium and larva



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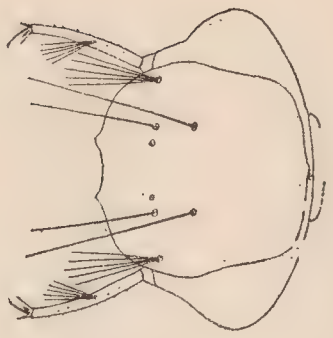

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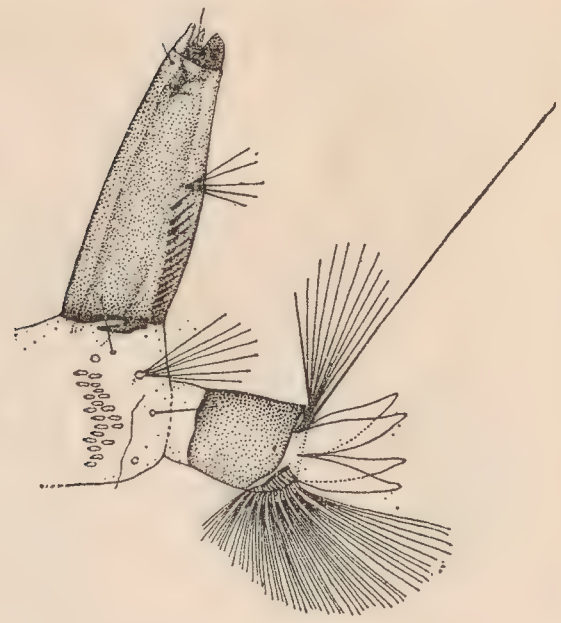

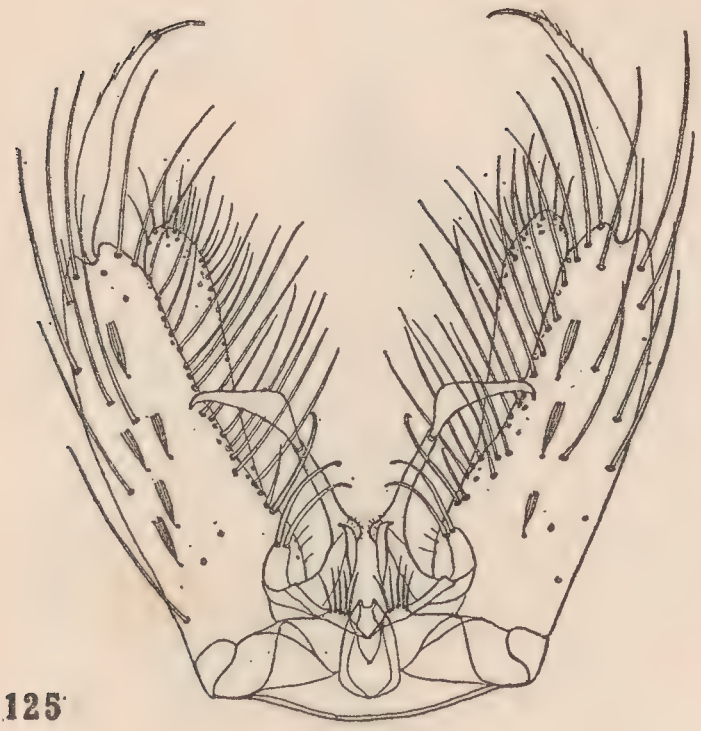

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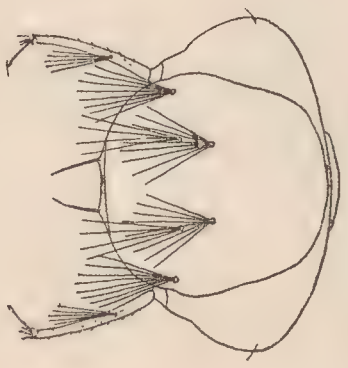

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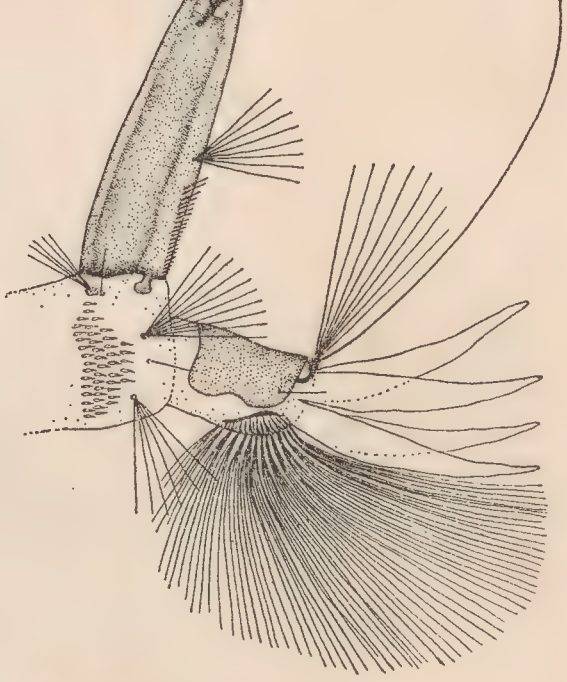

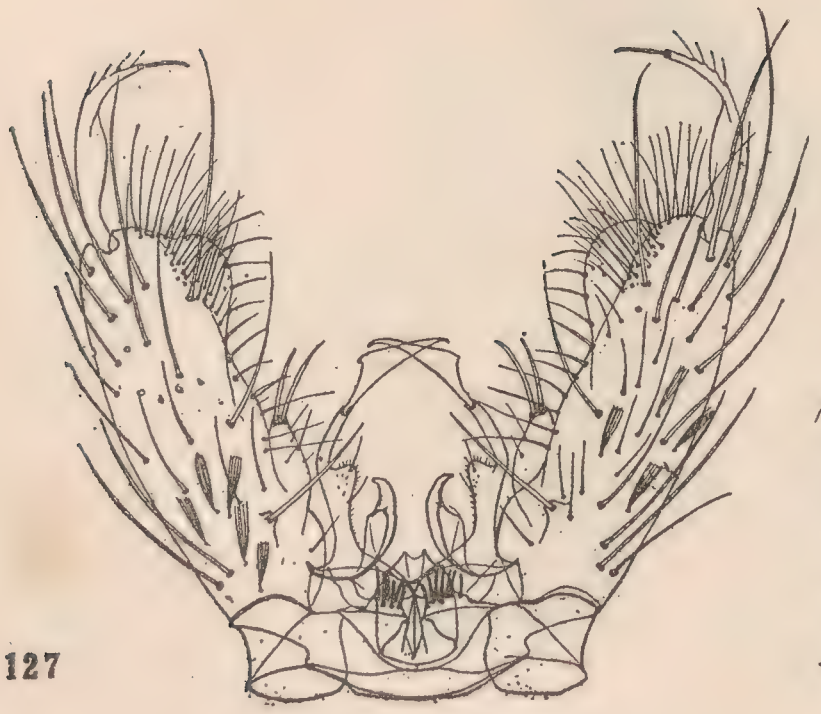

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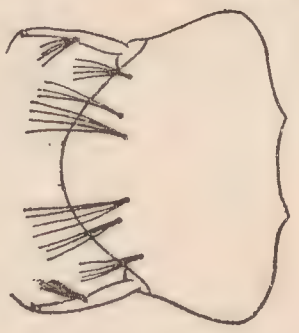

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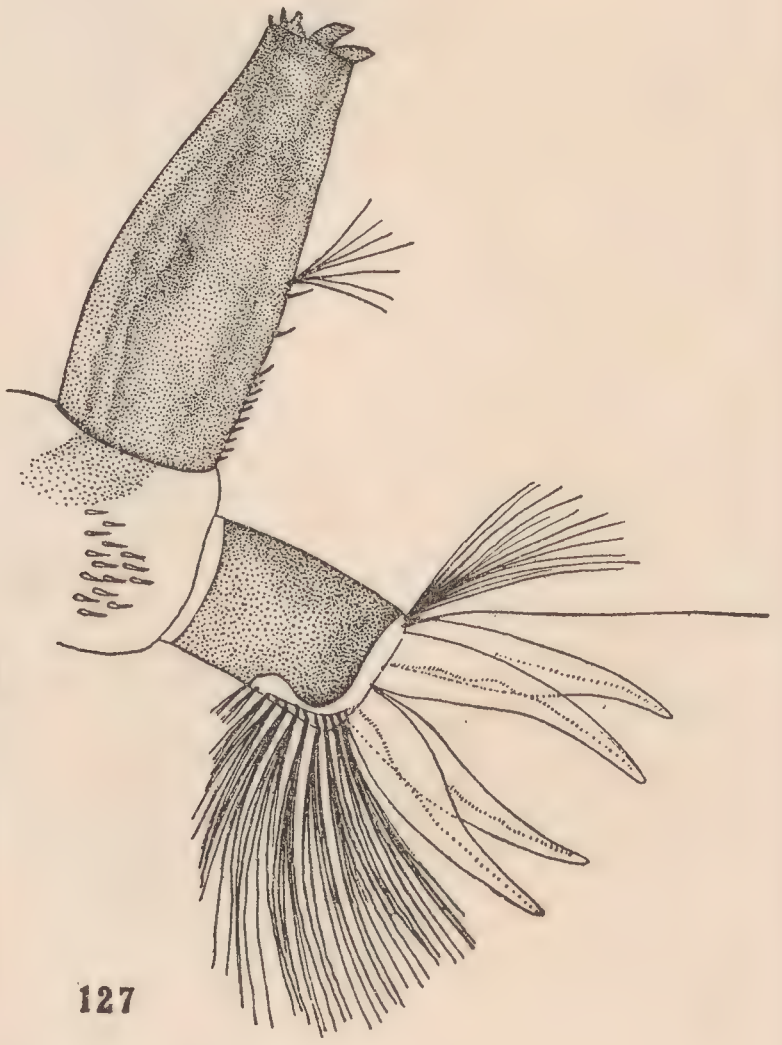
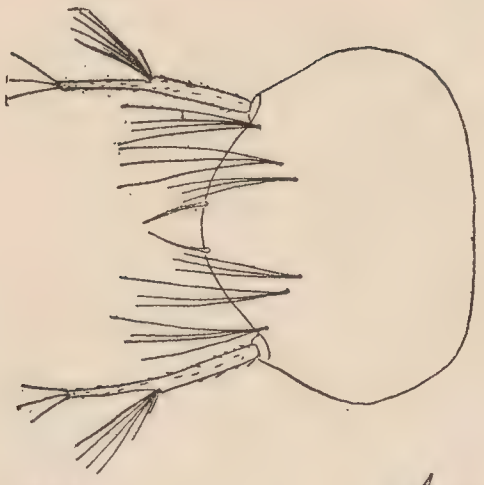


127

124. *Aëdes tortilis* Theob., male hypopygium and larva
125. *Aëdes pullatus* Coq., male hypopygium and larva
127. *Aëdes intrudens* Dyar, male hypopygium and larva

126



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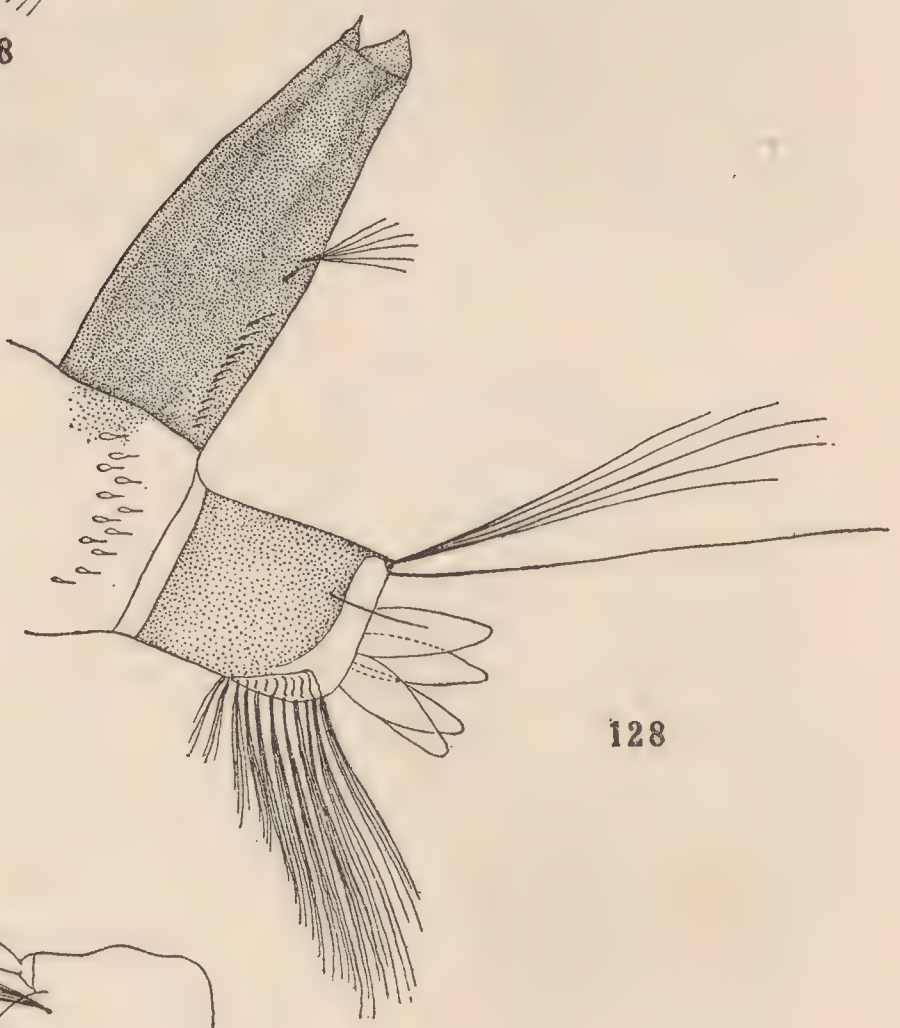

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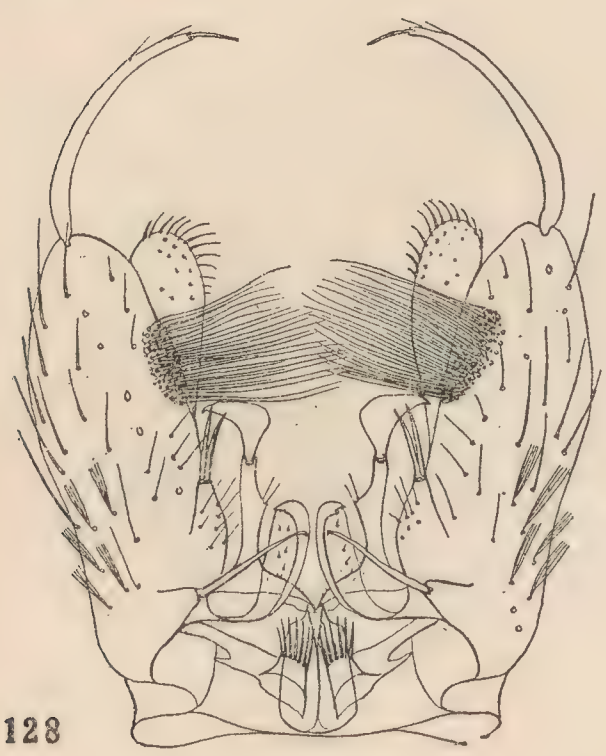

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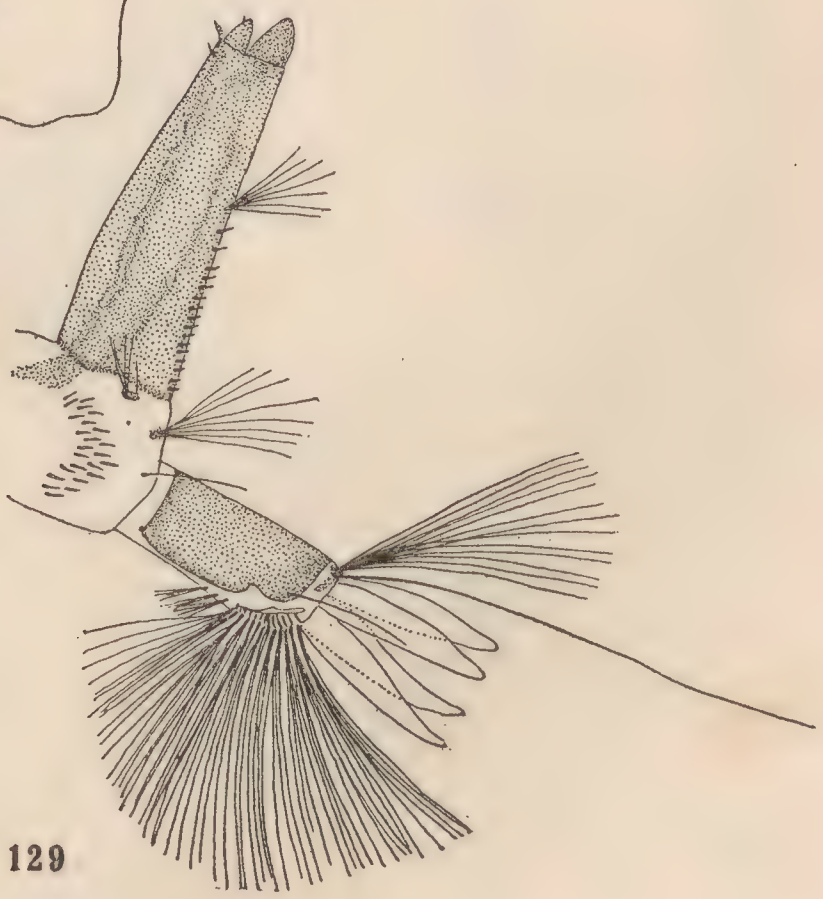
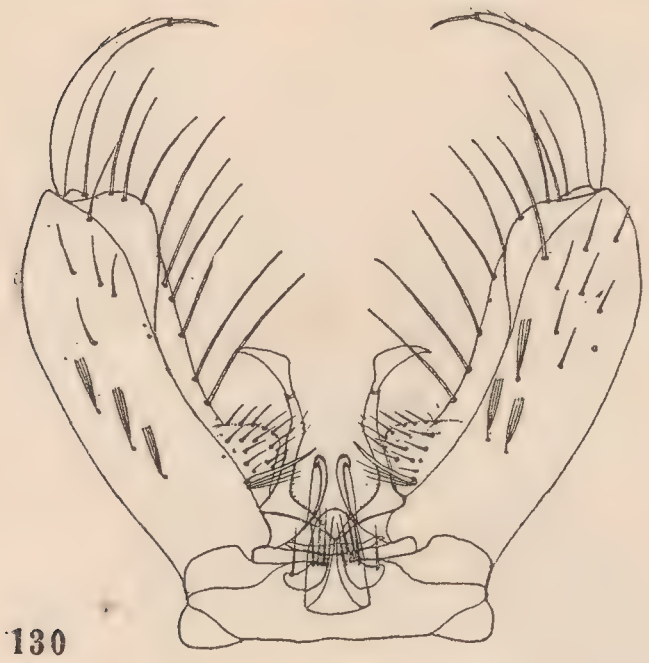


129

129

126. *Aëdes muelleri* Dyar, male hypopygium
128. *Aëdes diantæus* H., D. and K., male hypopygium and larva
129. *Aëdes aurifer* Coq., male hypopygium and larva



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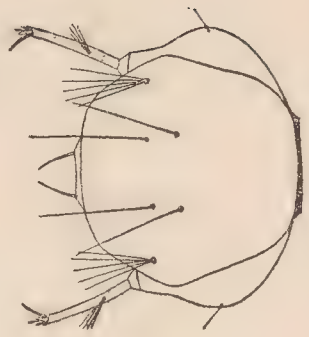

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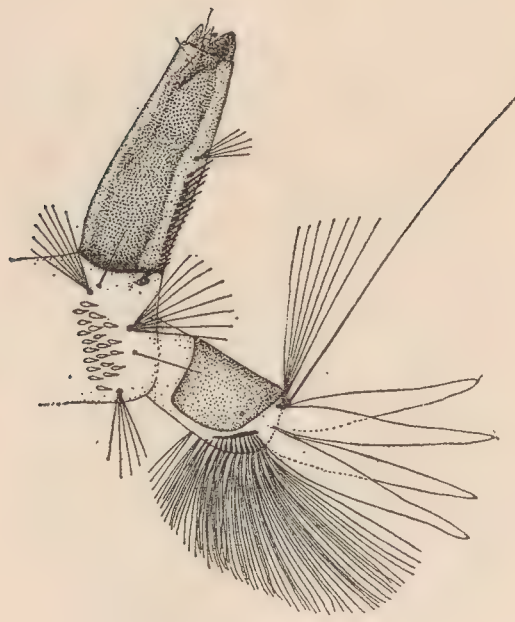

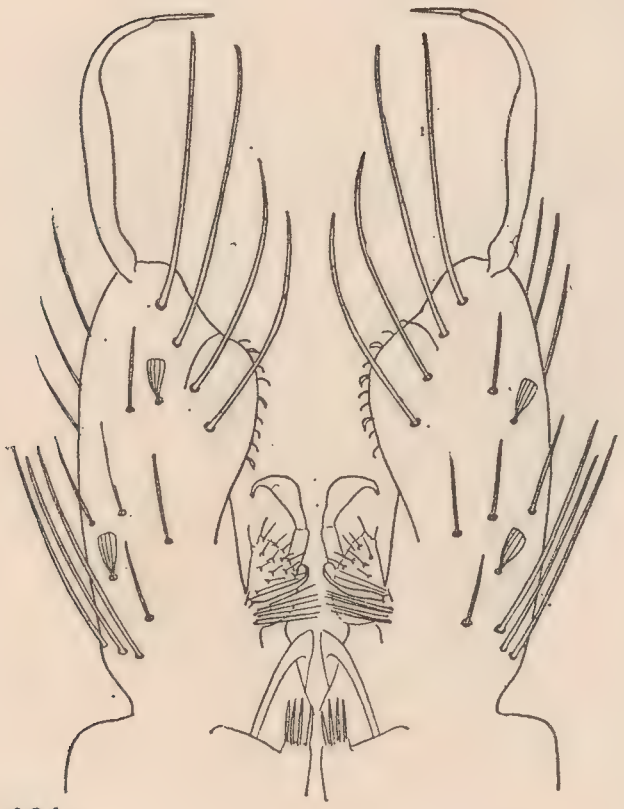

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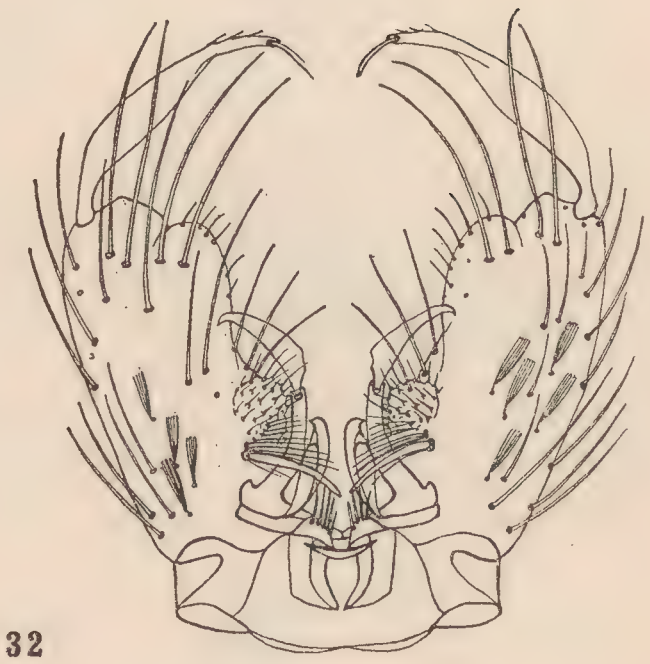

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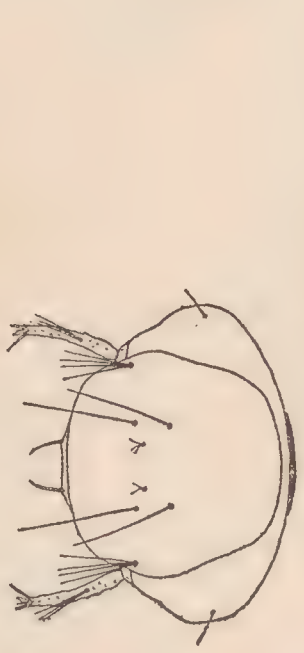

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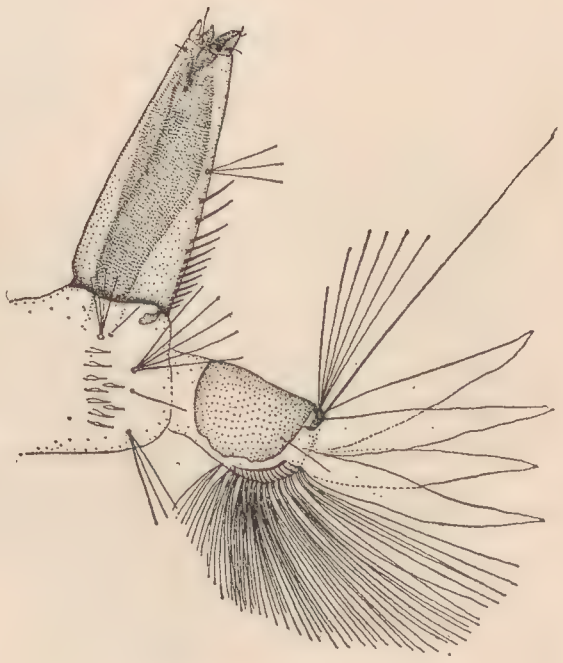
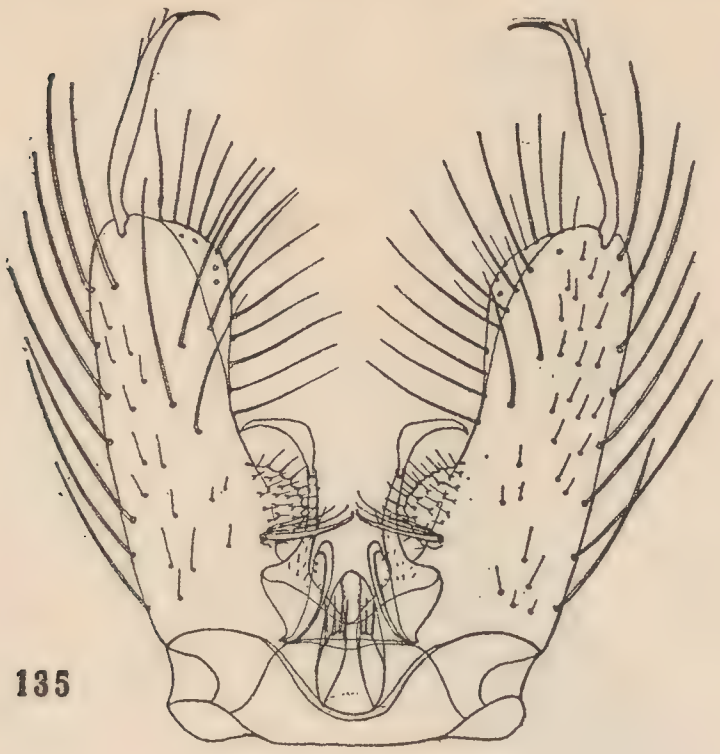


130. *Aëdes hirsuteron* Theob., male hypopygium and larva
131. *Aëdes aldrichi* D. and K., male hypopygium
132. *Aëdes idahoensis* Theob., male hypopygium
133. *Aëdes spencerii* Theob., male hypopygium and larva



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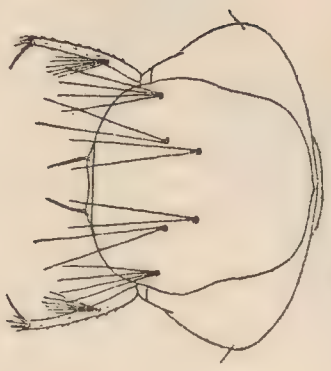

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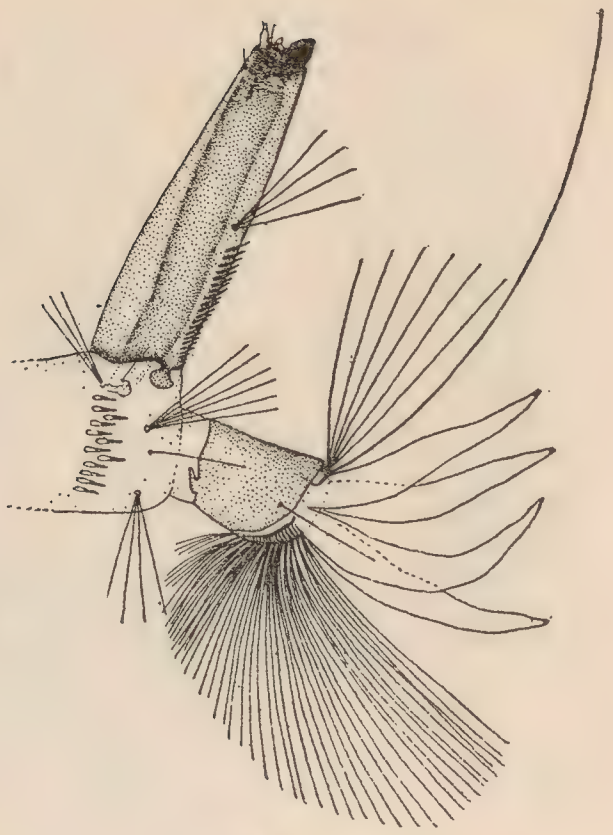

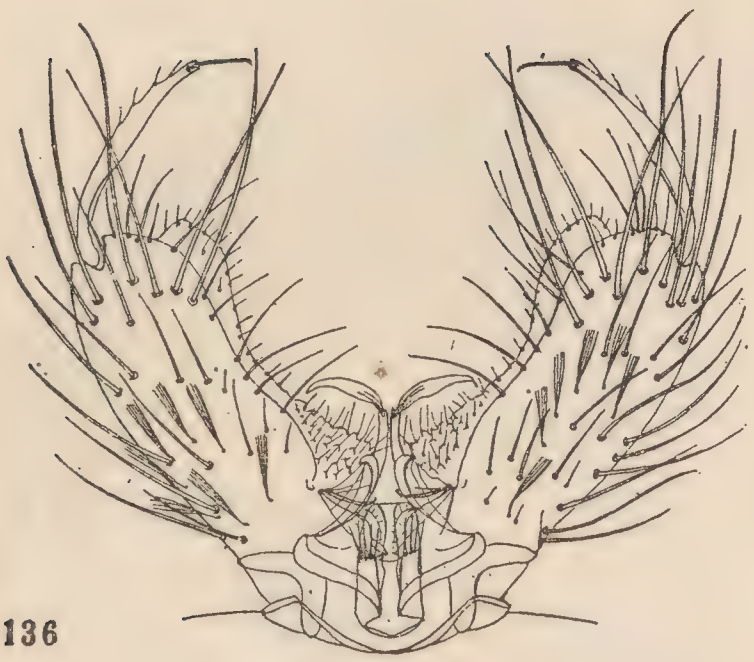

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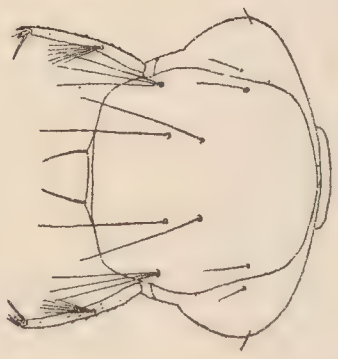

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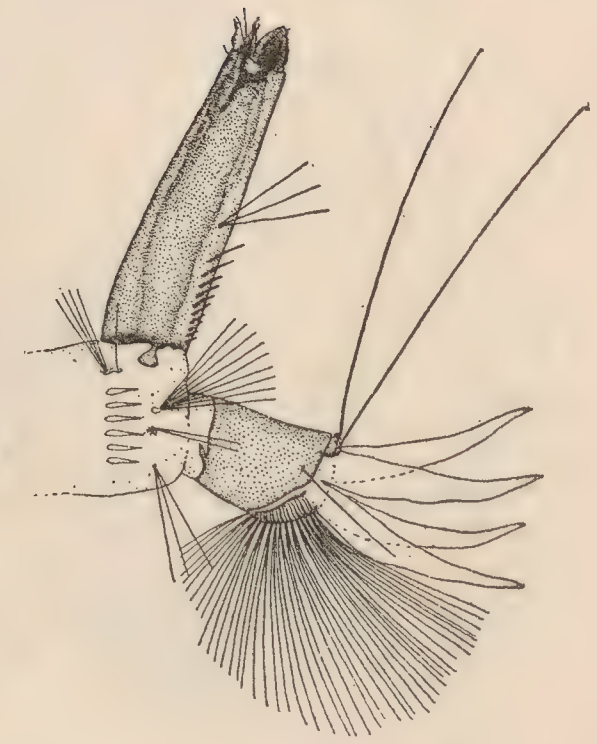

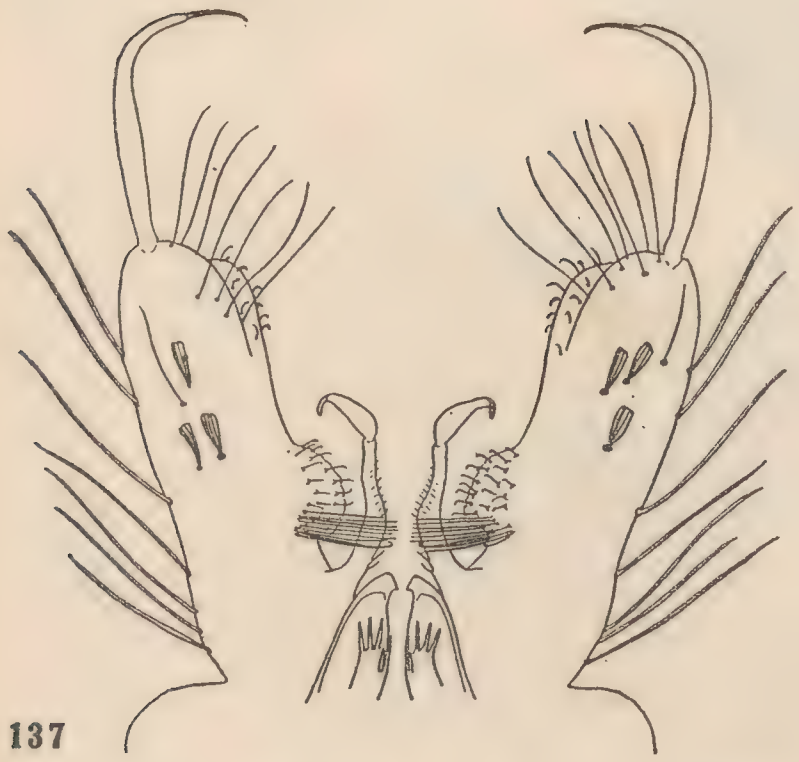

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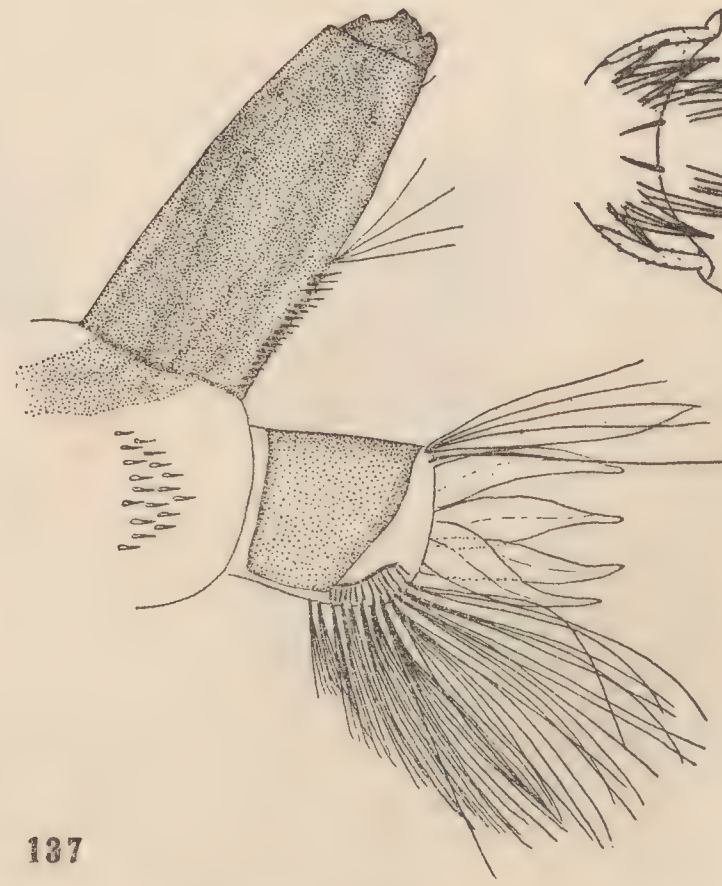
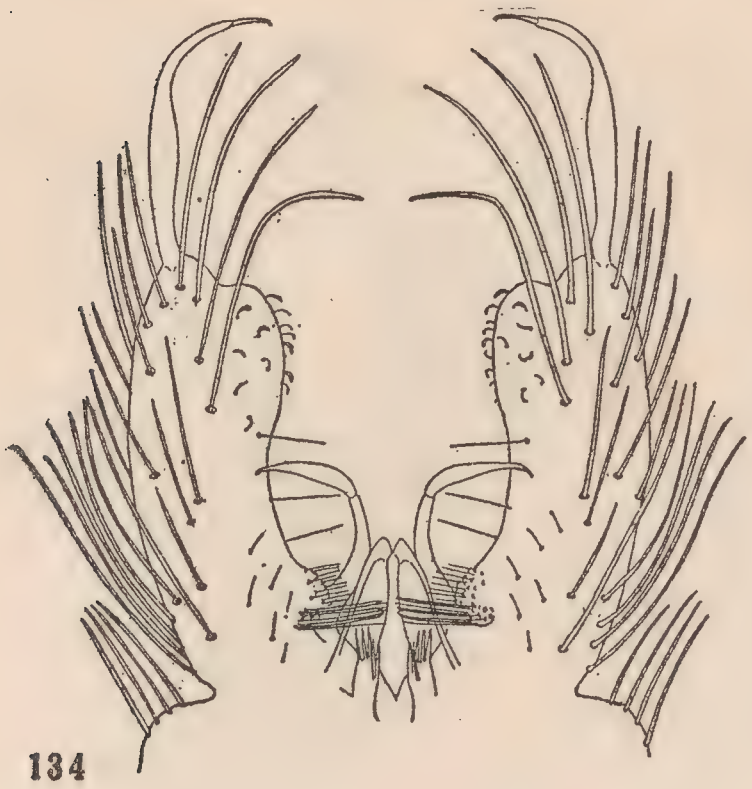


137

135. *Aëdes punctor* Kirby, male hypopygium and larva
136. *Aëdes implacabilis* Walk., male hypopygium and larva
137. *Aëdes aboriginis* Dyar, male hypopygium and larva.



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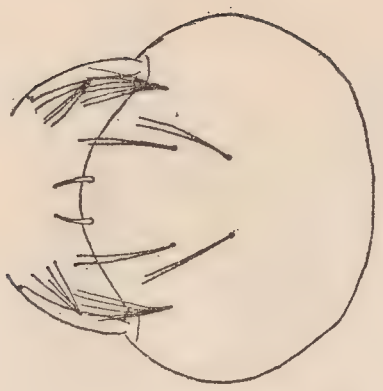

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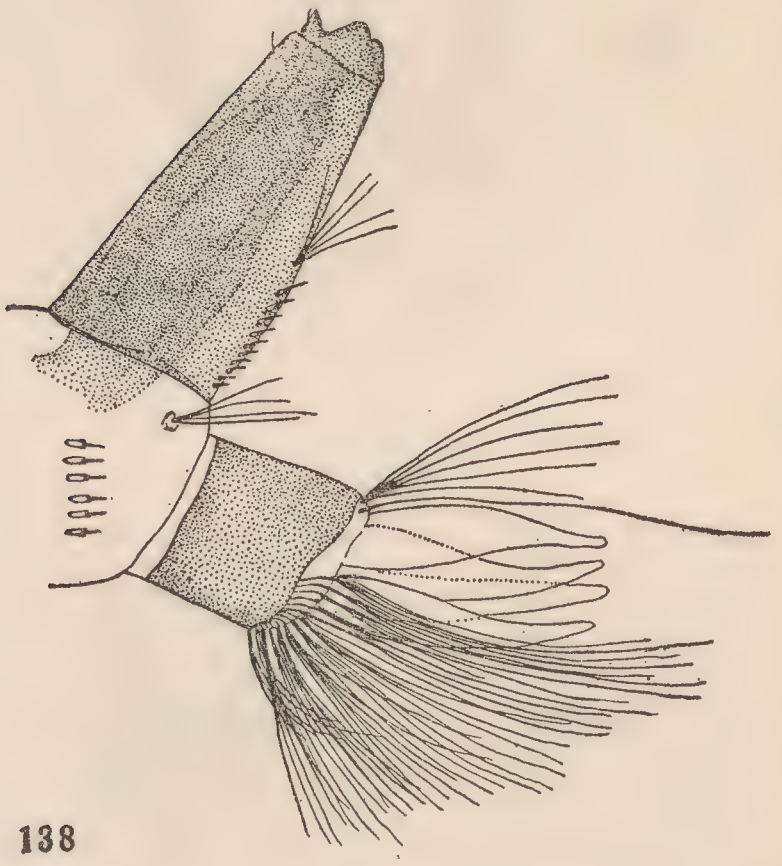

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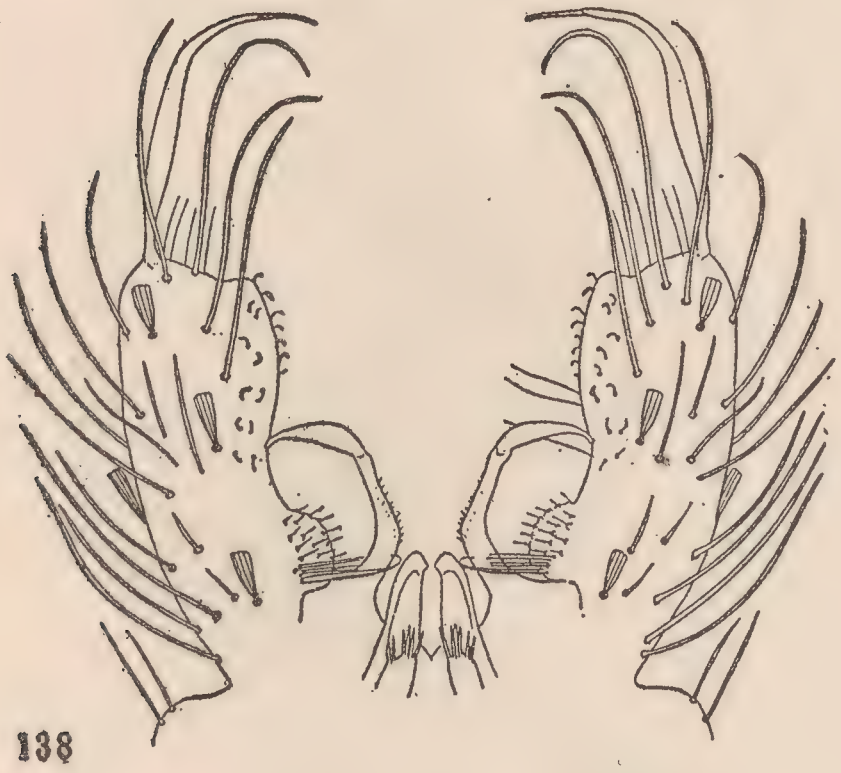

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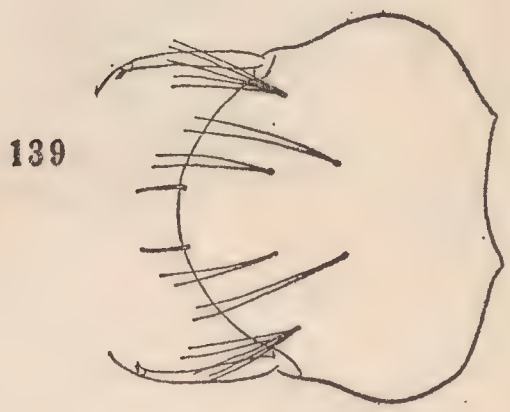

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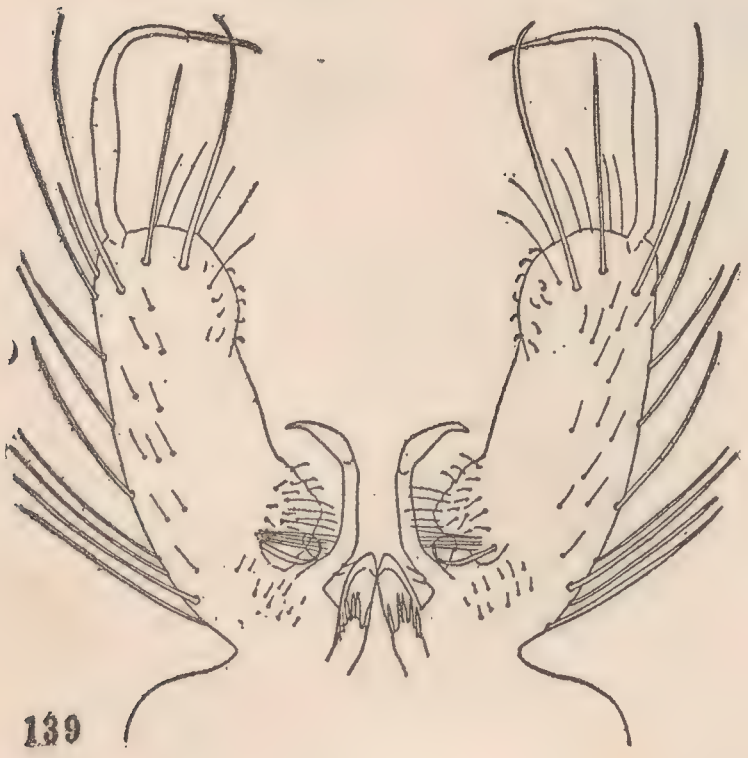

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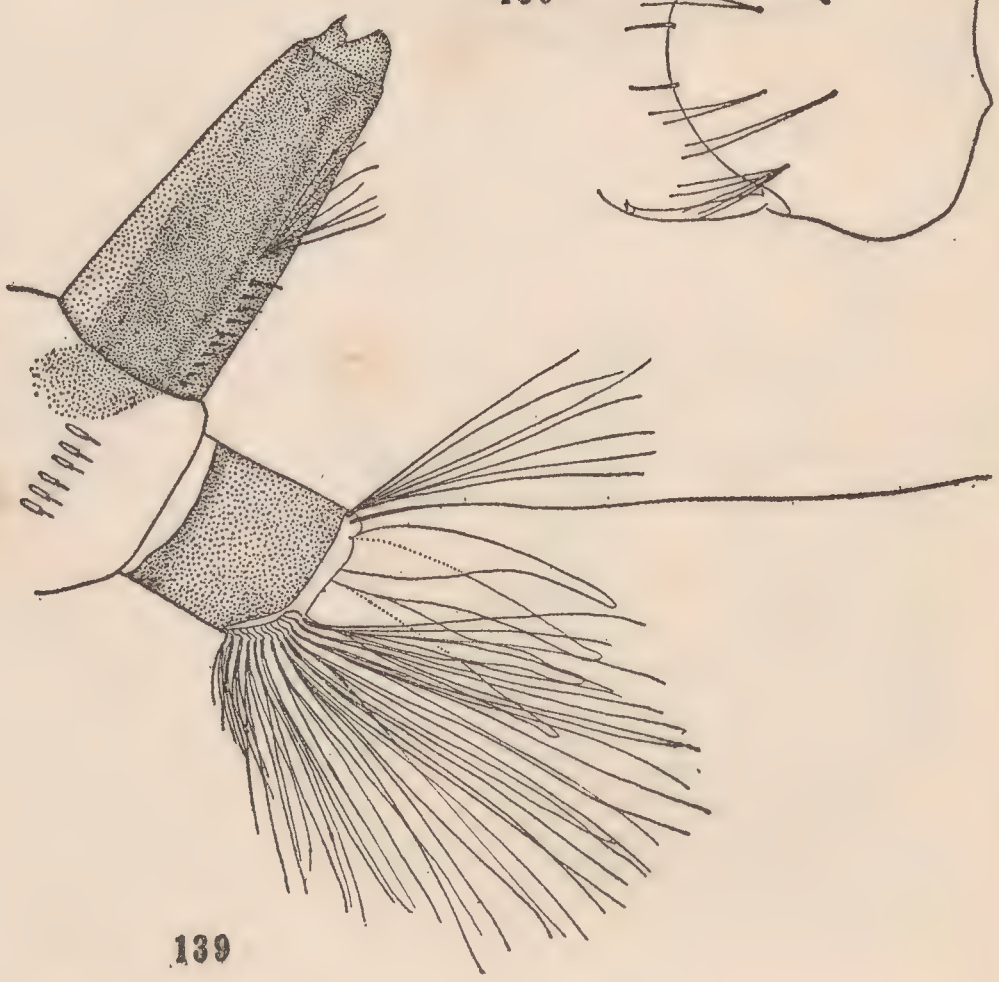
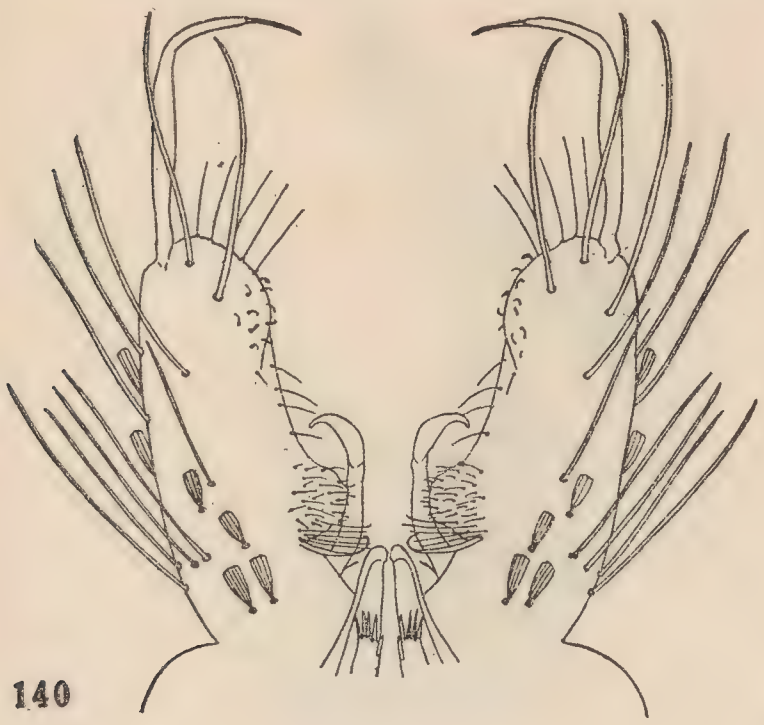


139

134. *Aëdes punctodes* Dyar, male hypopygium
138. *Aëdes hexadontus* Dyar, male hypopygium and larva
139. *Aëdes leuconotips* Dyar, male hypopygium and larva



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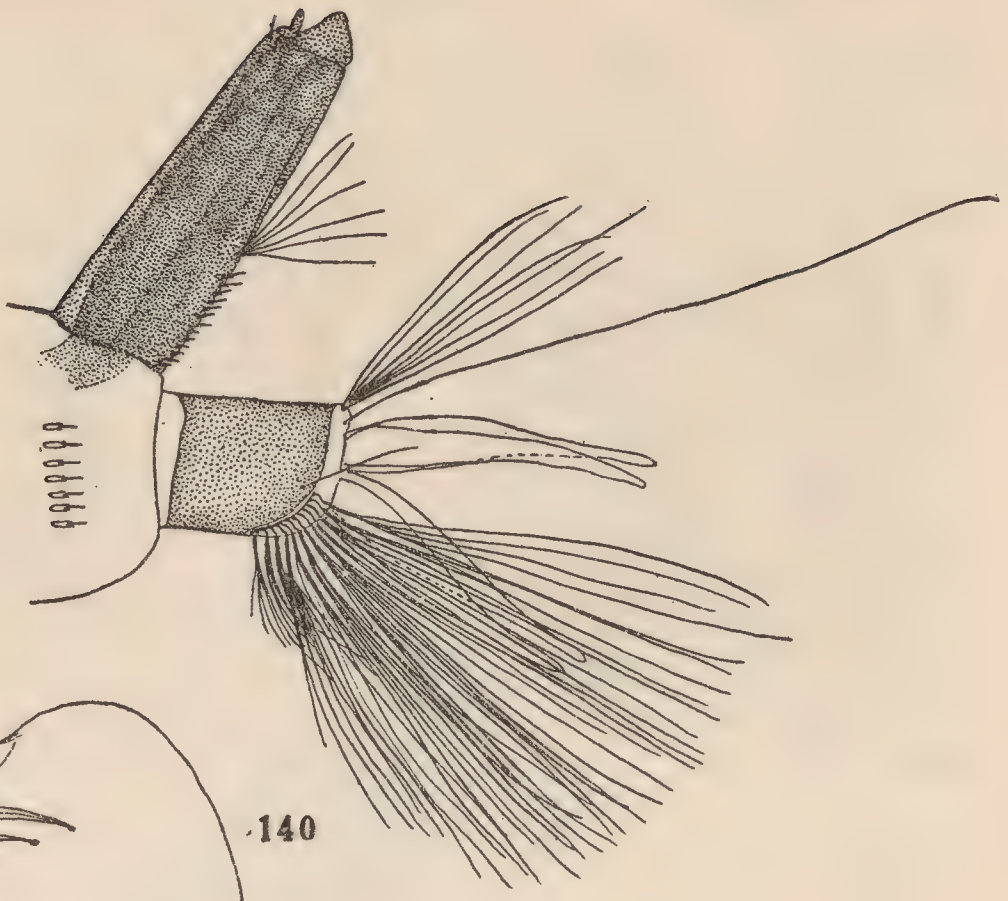

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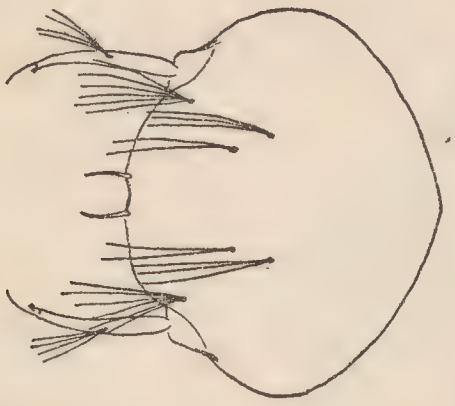

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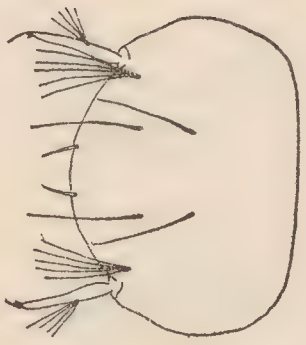

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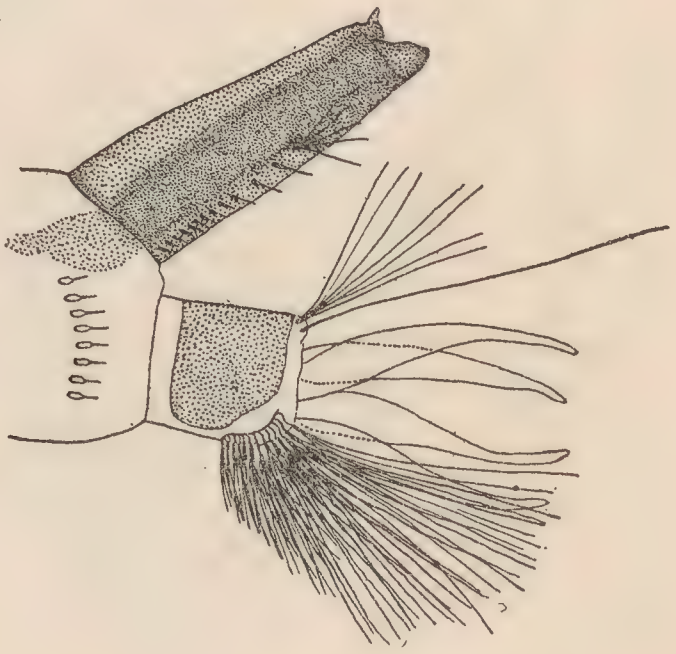

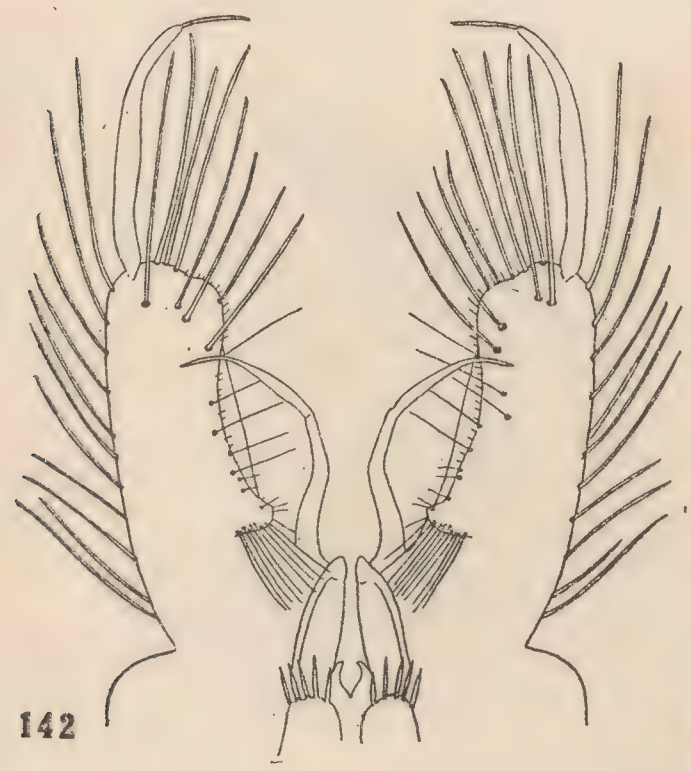

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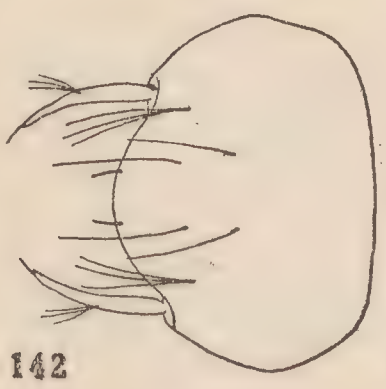

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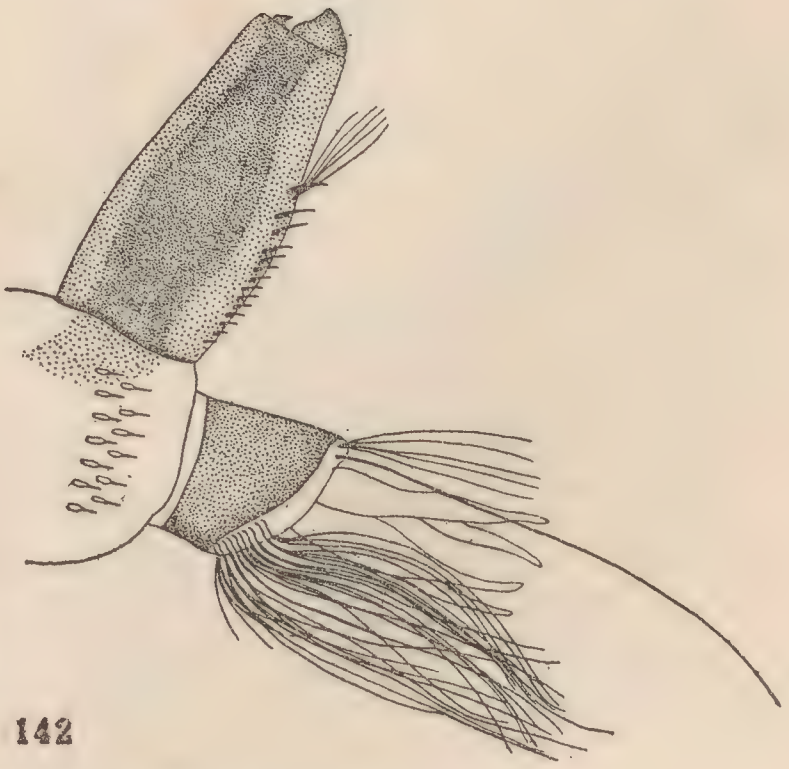
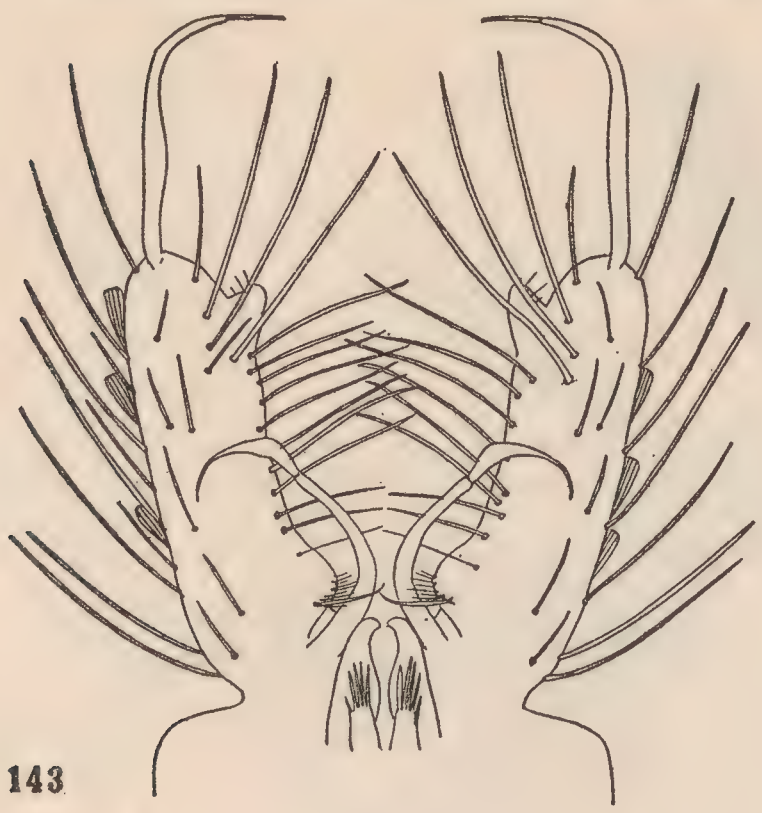
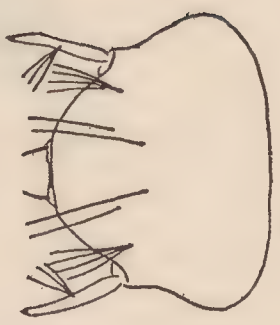
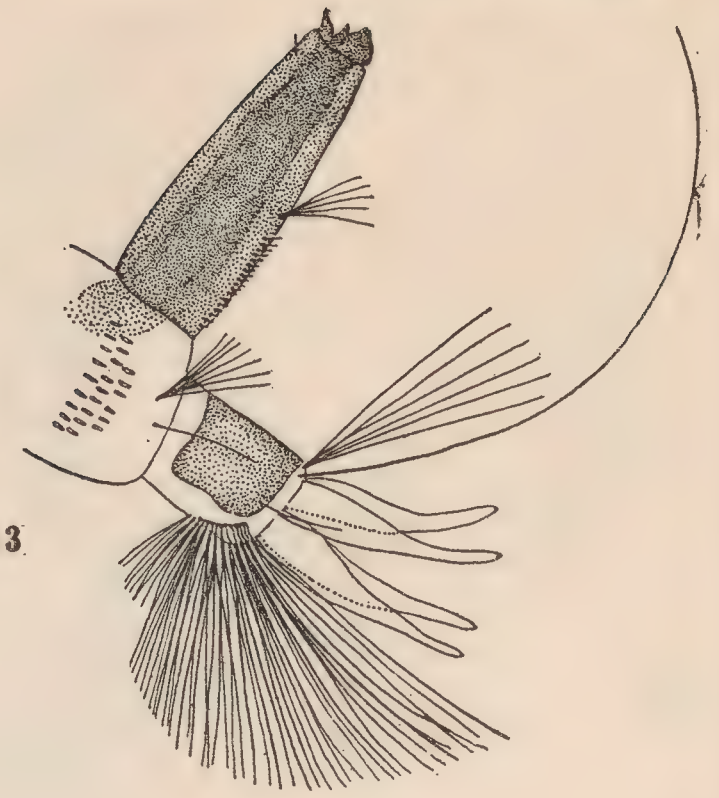


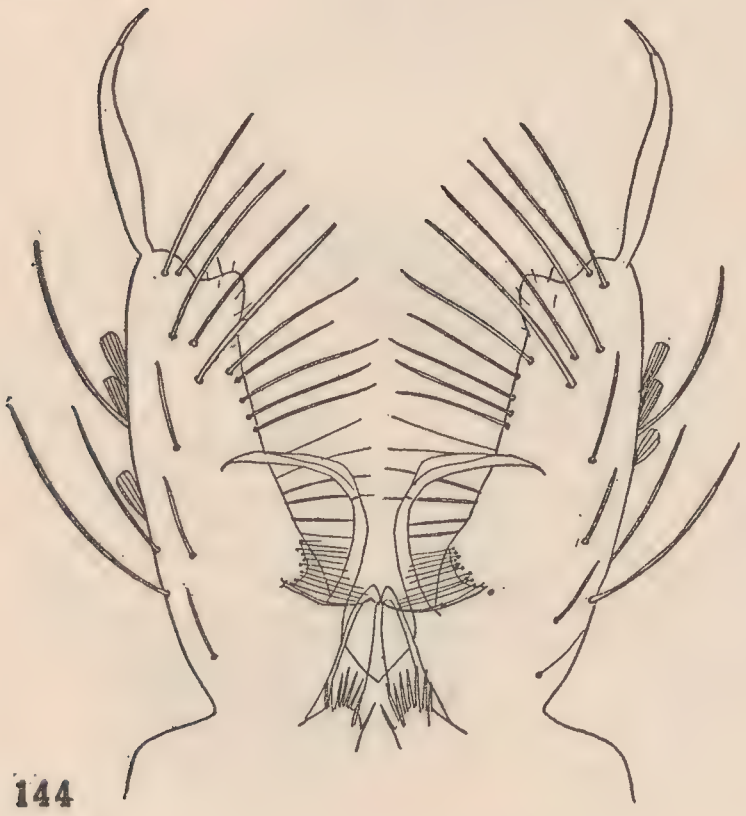
142

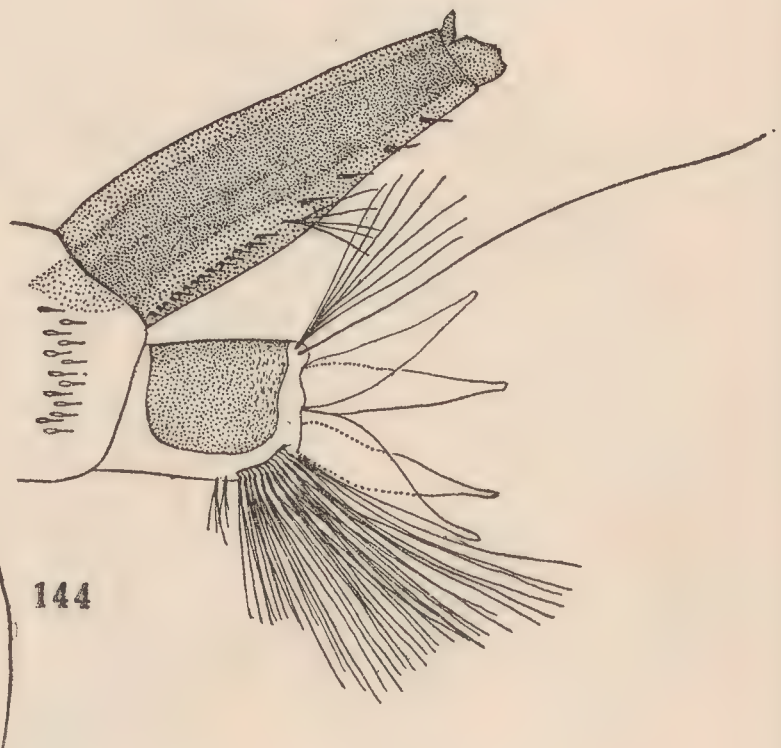
140. *Aëdes cyclocerculus* Dyar, male hypopygium and larva
141. *Aëdes ventrovittis* Dyar, male hypopygium and larva
142. *Aëdes alpinus* Linn., male hypopygium and larva

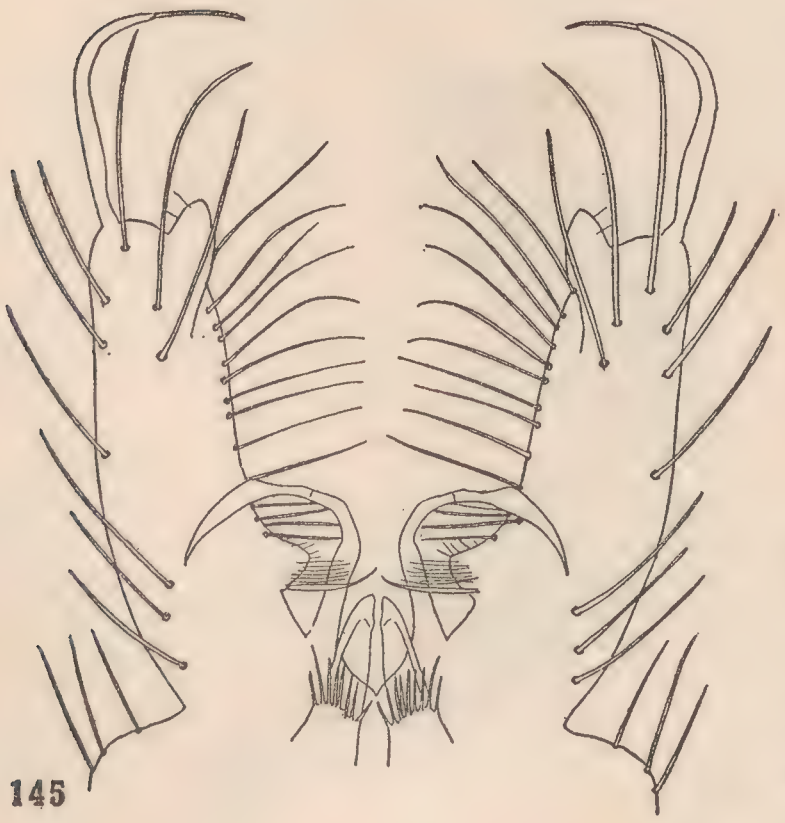


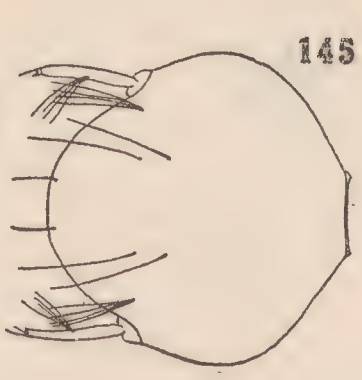


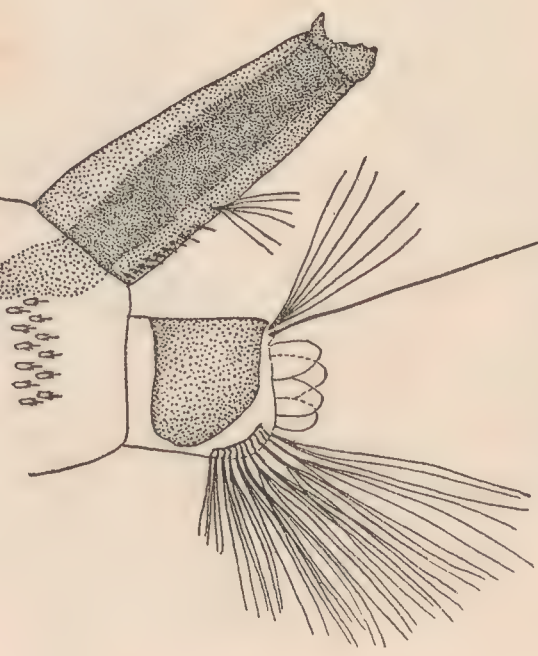






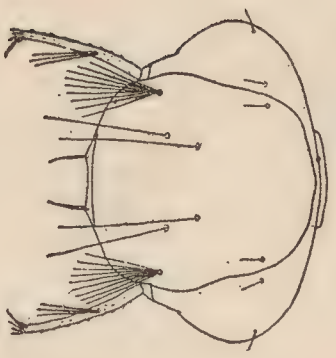


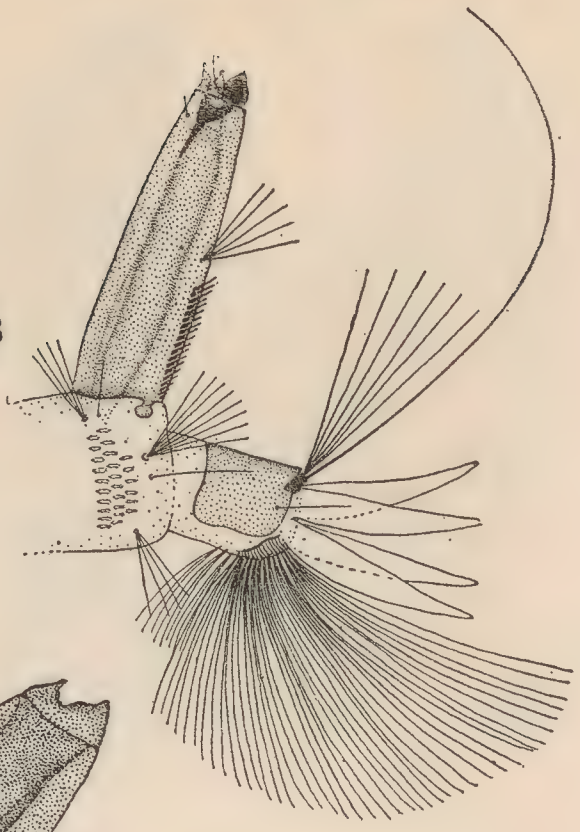




143. *Aëdes impiger* Walk., male hypopygium and larva
144. *Aëdes cataphylla* Dyar, male hypopygium and larva
145. *Aëdes niphadopsis* D. and K., male hypopygium and larva

146

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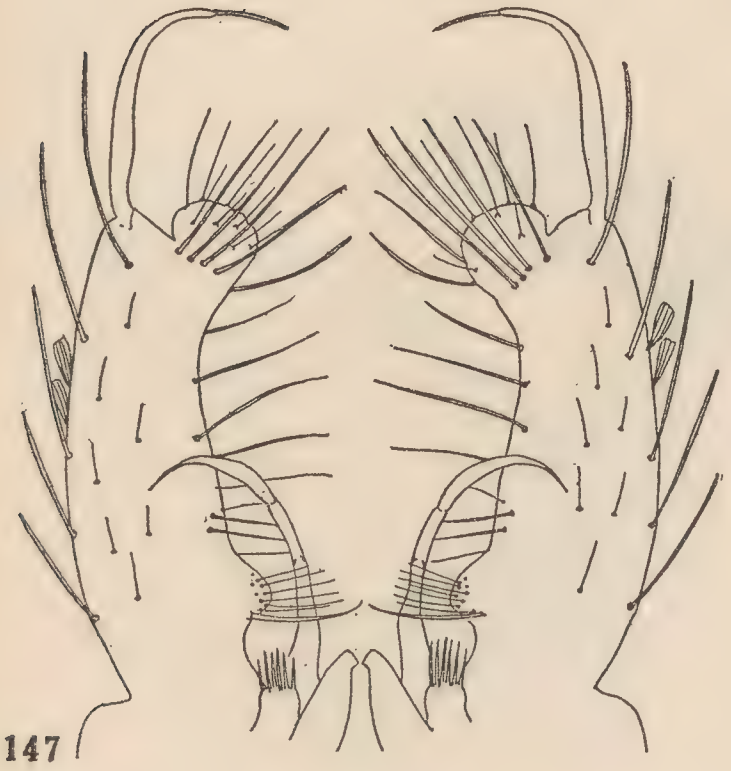
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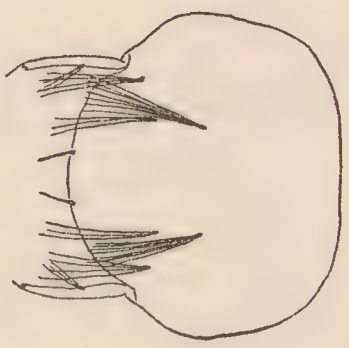

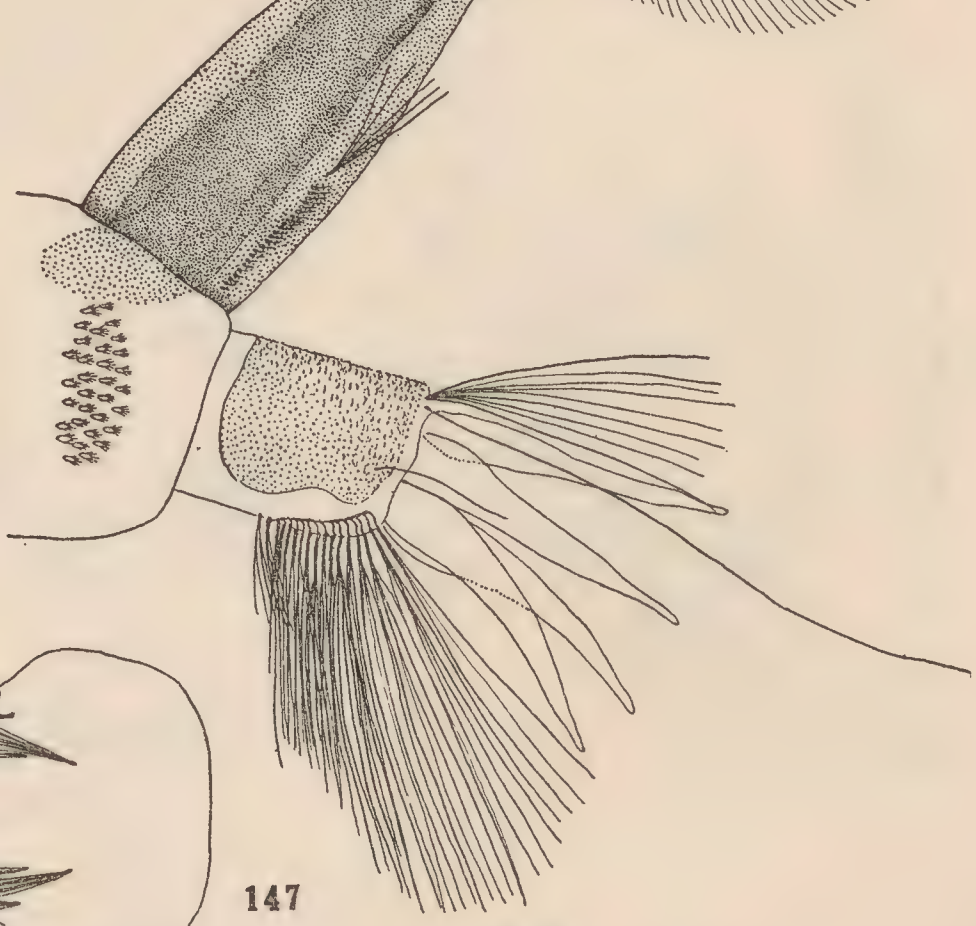
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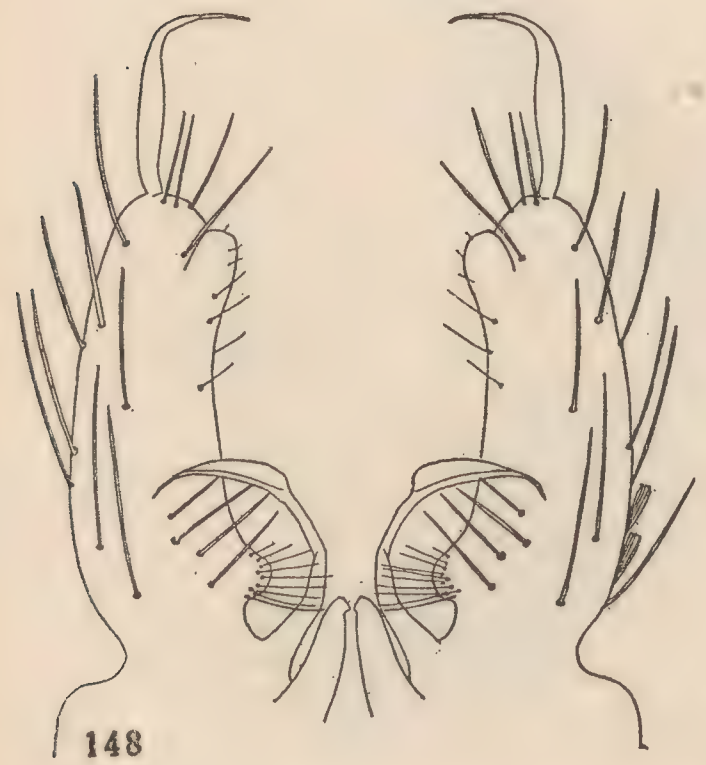
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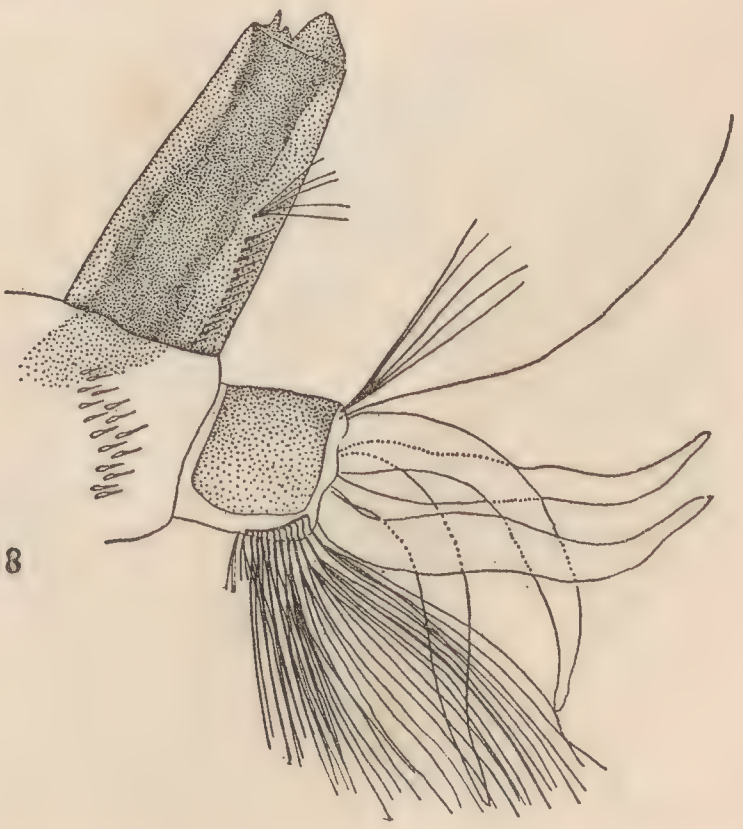
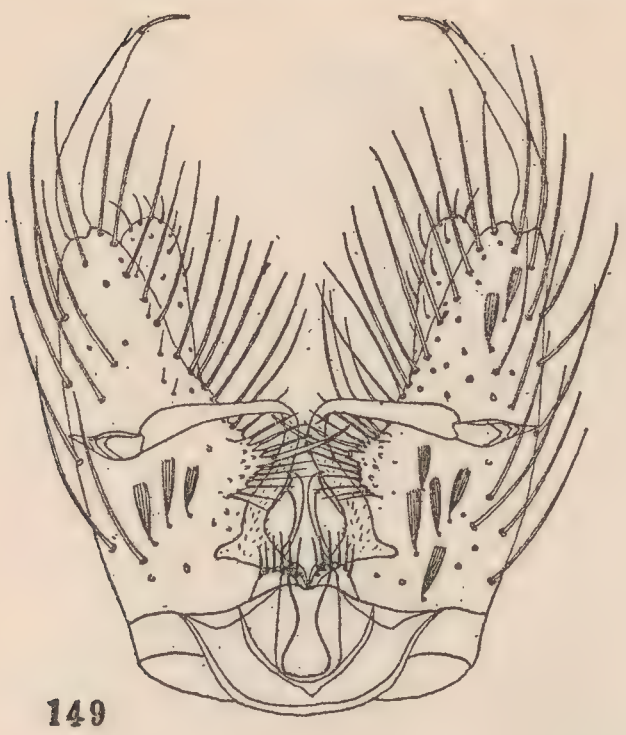
148



146. *Aëdes communis* DeGeer, male hypopygium and larva
147. *Aëdes pionips* Dyar, male hypopygium and larva
148. *Aëdes nearcticus* Dyar, male hypopygium and larva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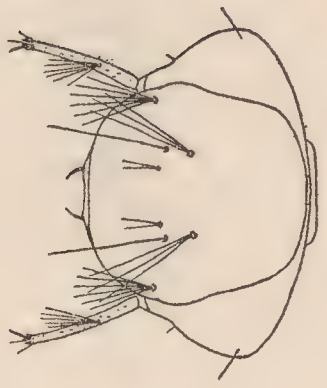
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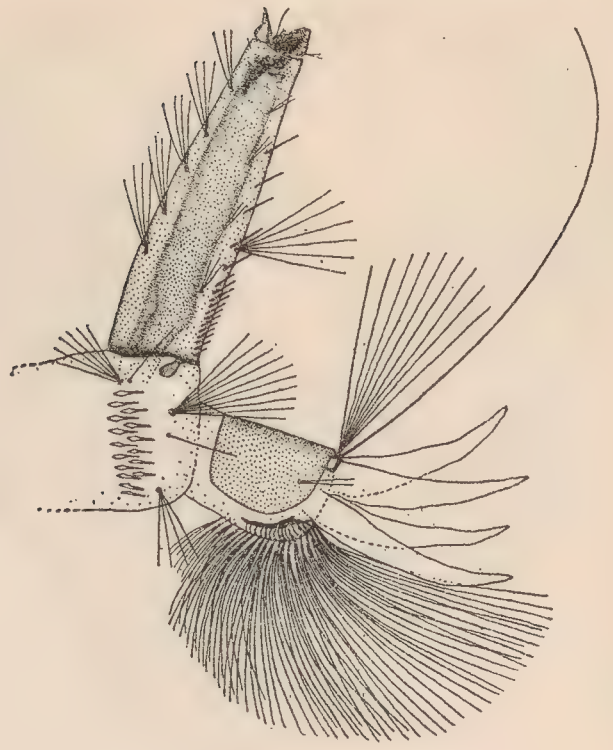

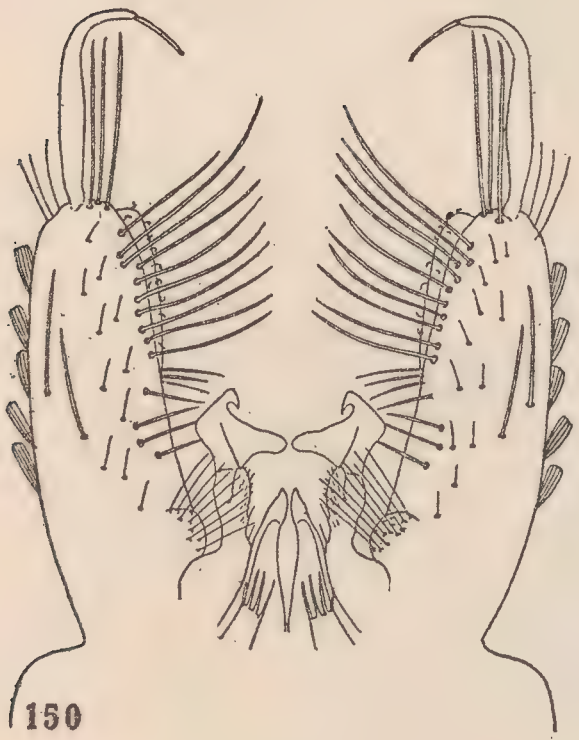
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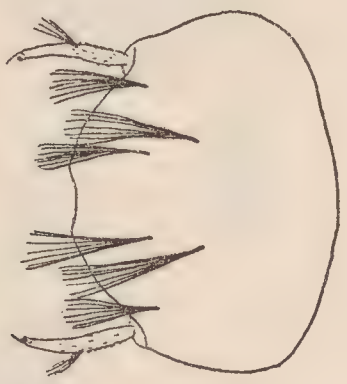
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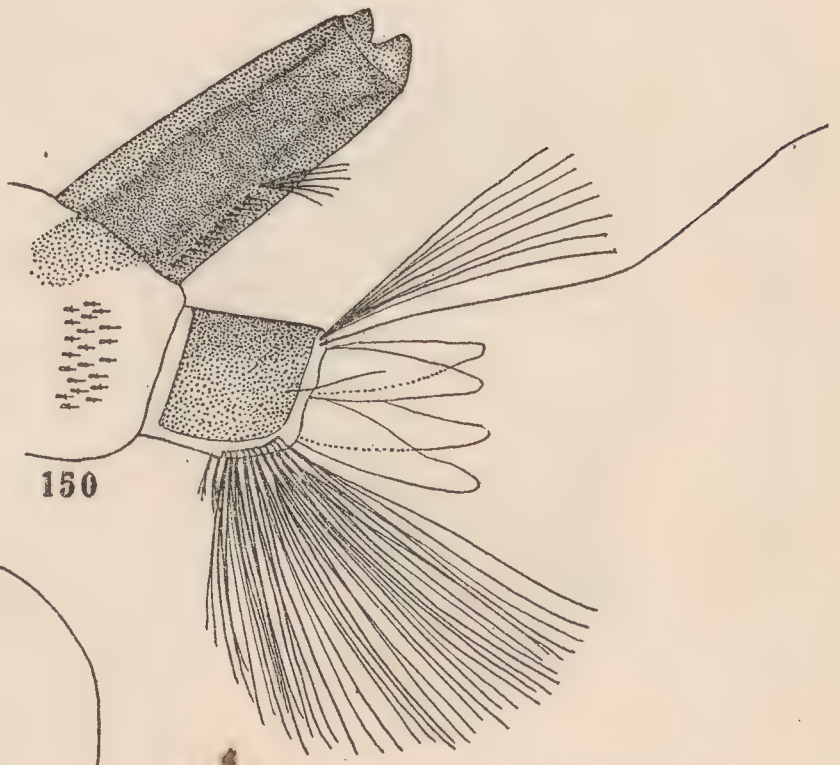

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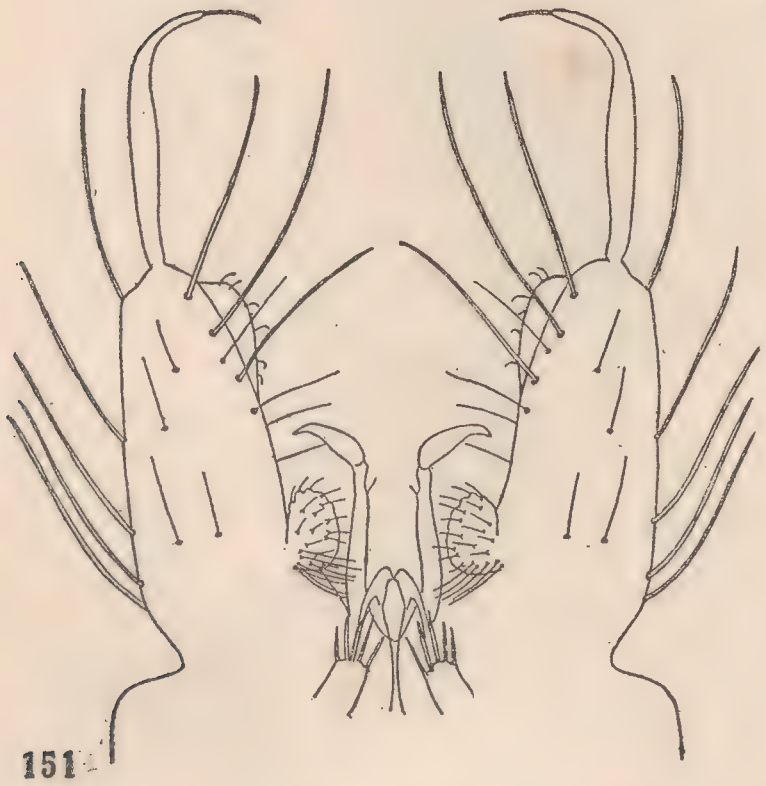
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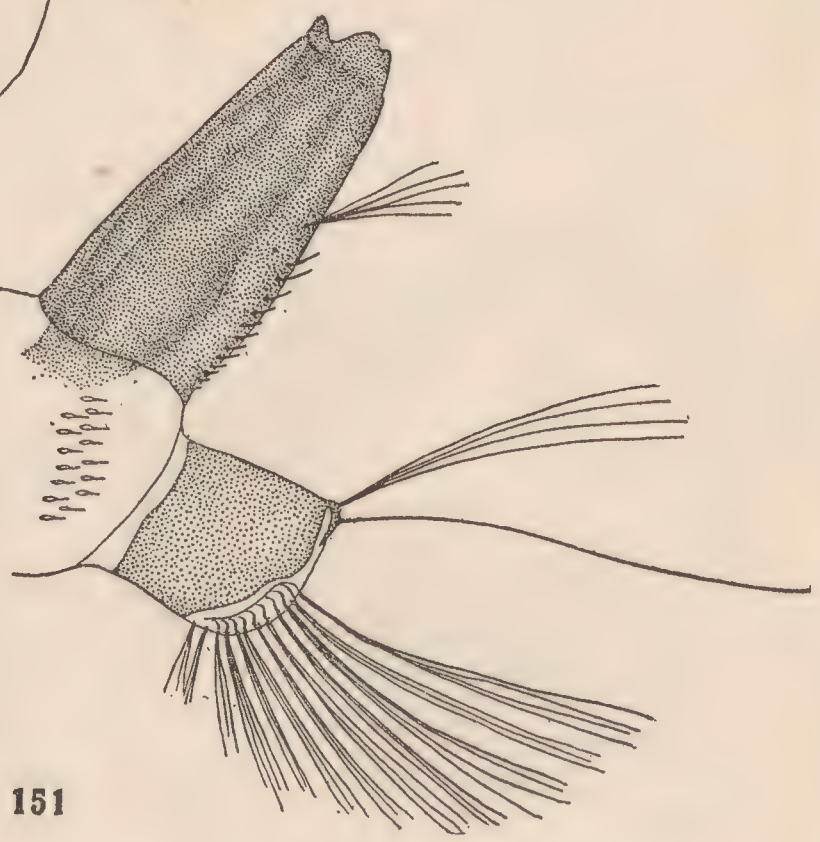
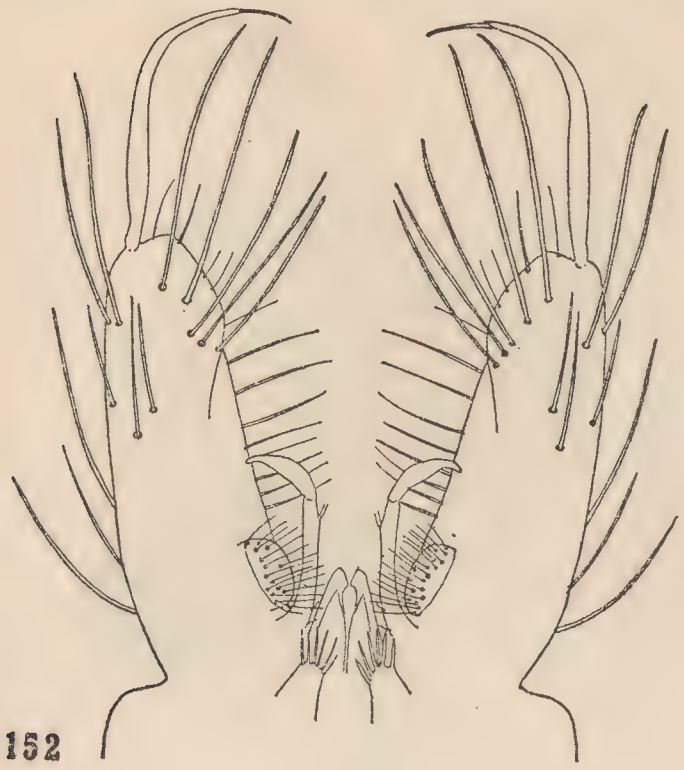
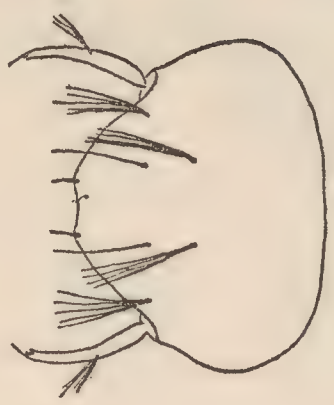
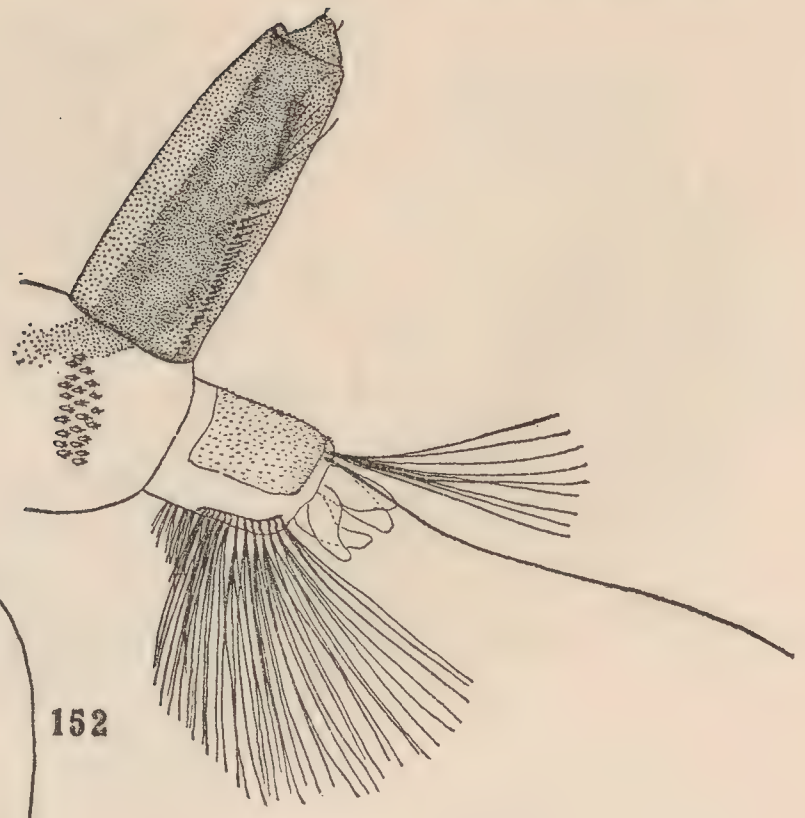
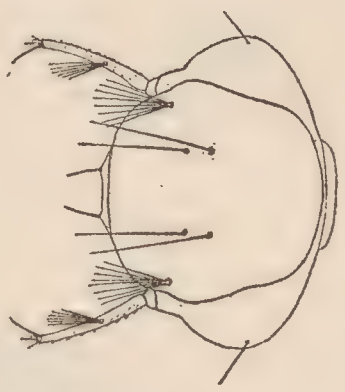

151

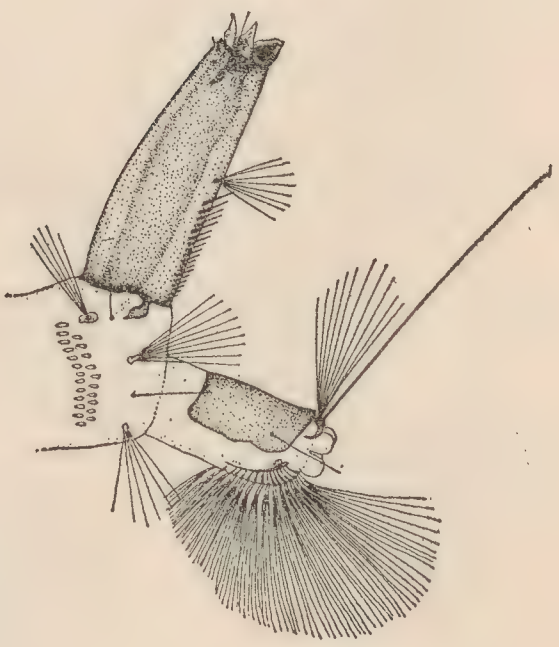
149. *Aëdes trichurus* Dyar, male hypopygium and larva
150. *Aëdes thibaulti* D. and K., male hypopygium and larva
151. *Aëdes albifasciatus* Macquart, male hypopygium and larva

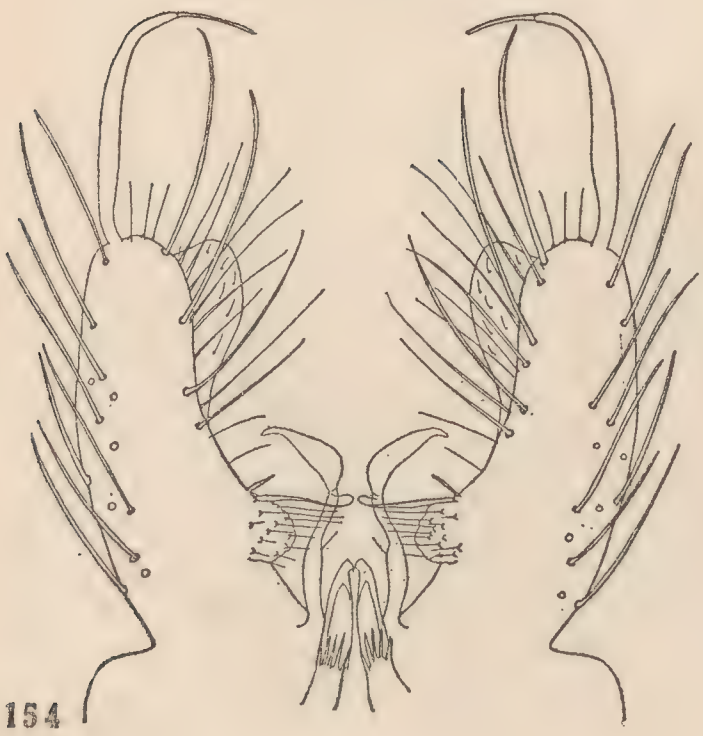


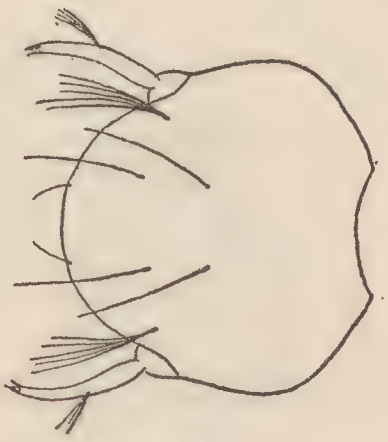


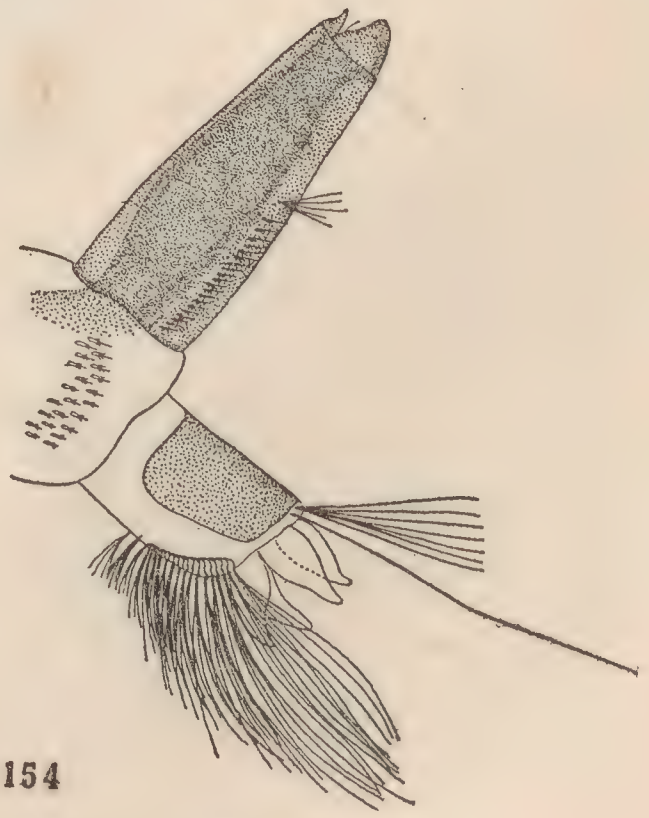




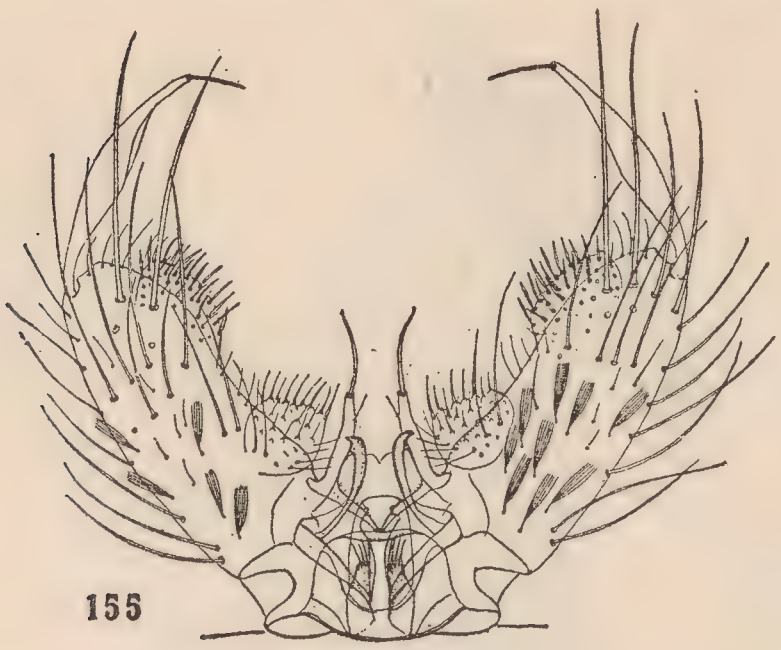








152. *Aëdes campestris* D. and K., male hypopygium and larva
153. *Aëdes dorsalis* Meig., male hypopygium and larva
154. *Aëdes melanimon* Dyar, male hypopygium and larva



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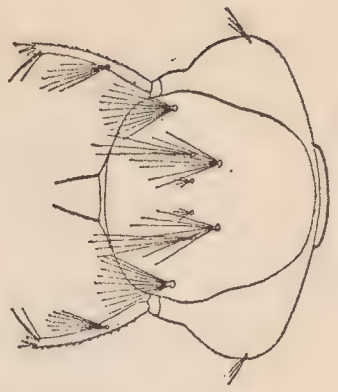

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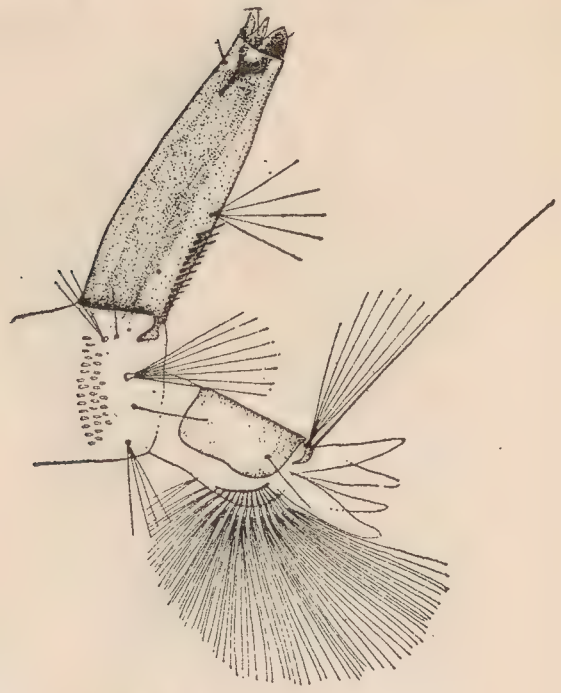

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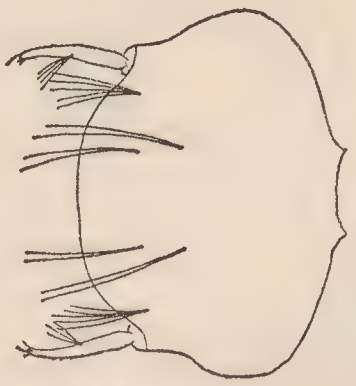

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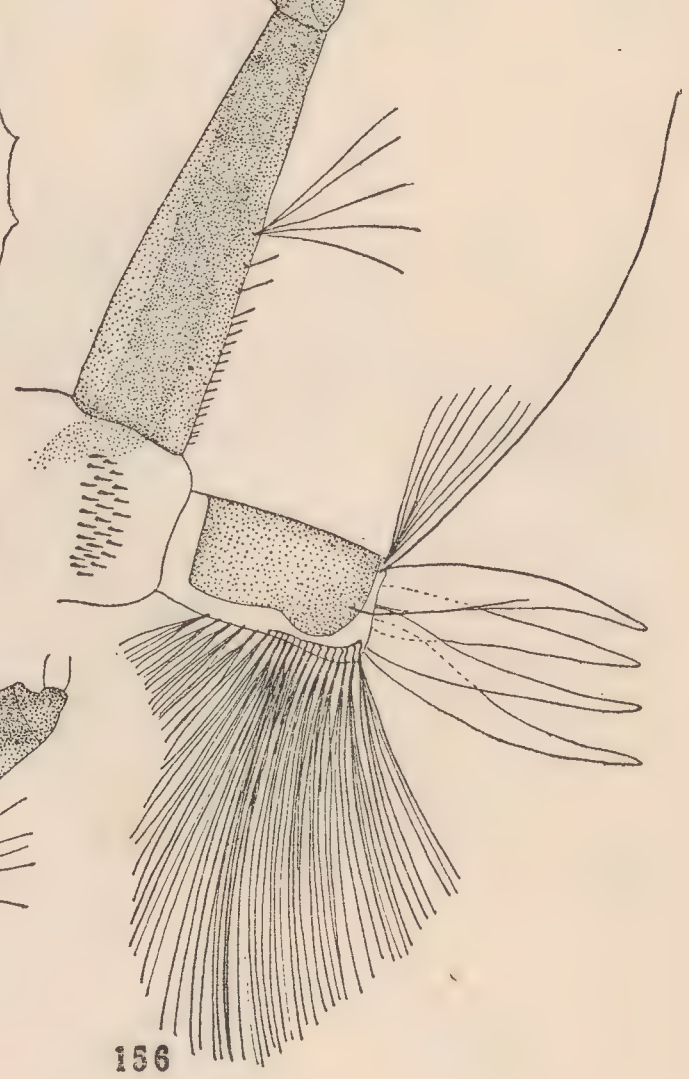

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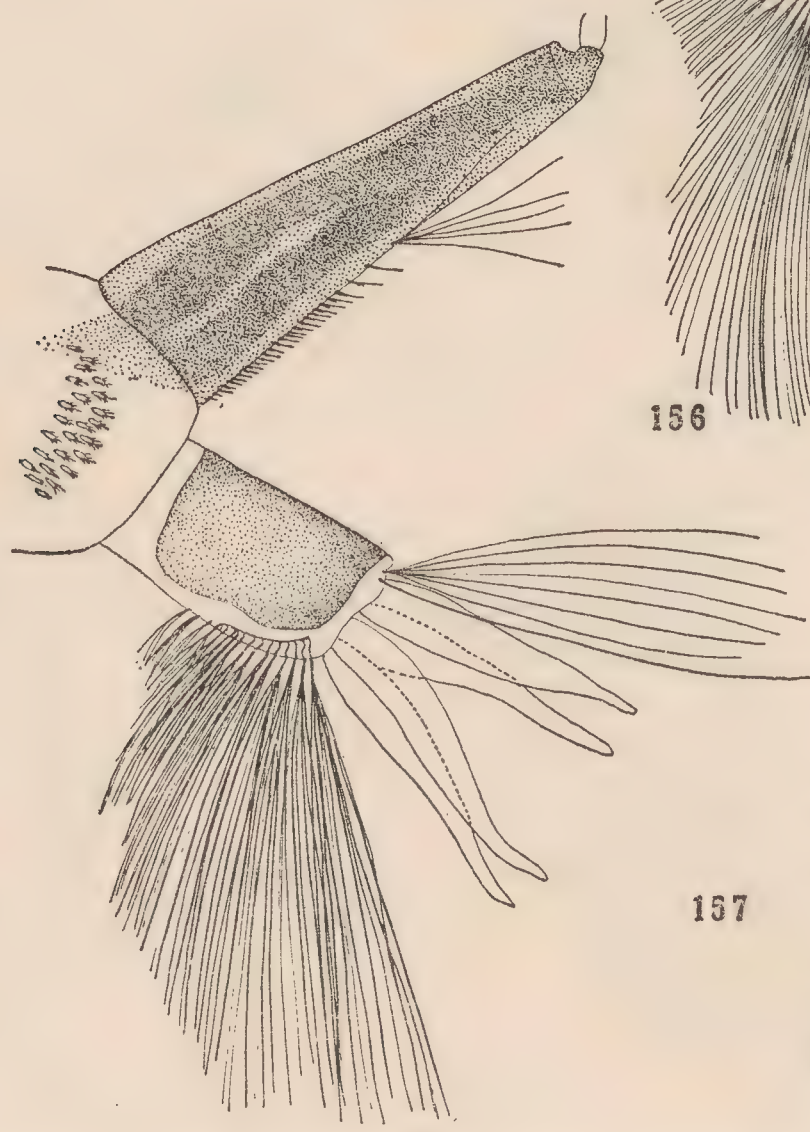
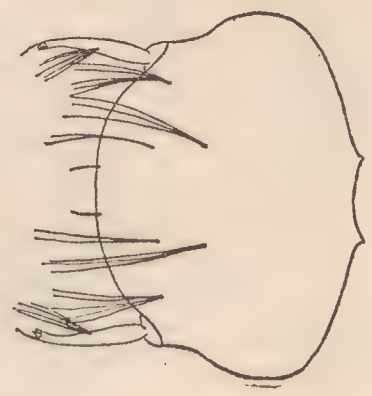
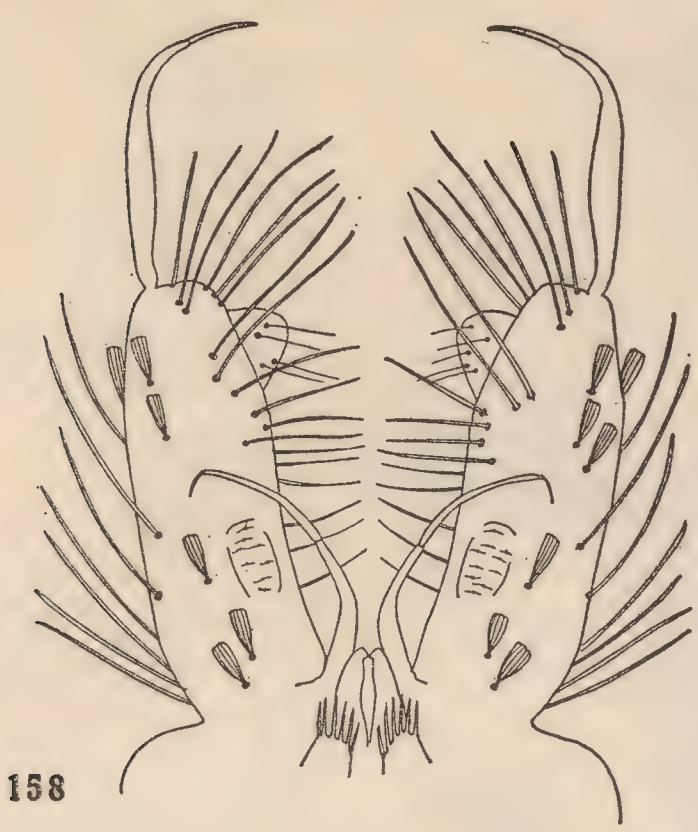




157

155. *Aëdes canadensis* Theob., male hypopygium and larva
156. *Aëdes excrucians* Walk., male hypopygium and larva
157. *Aëdes aloponotum* Dyar, male hypopygium and larva



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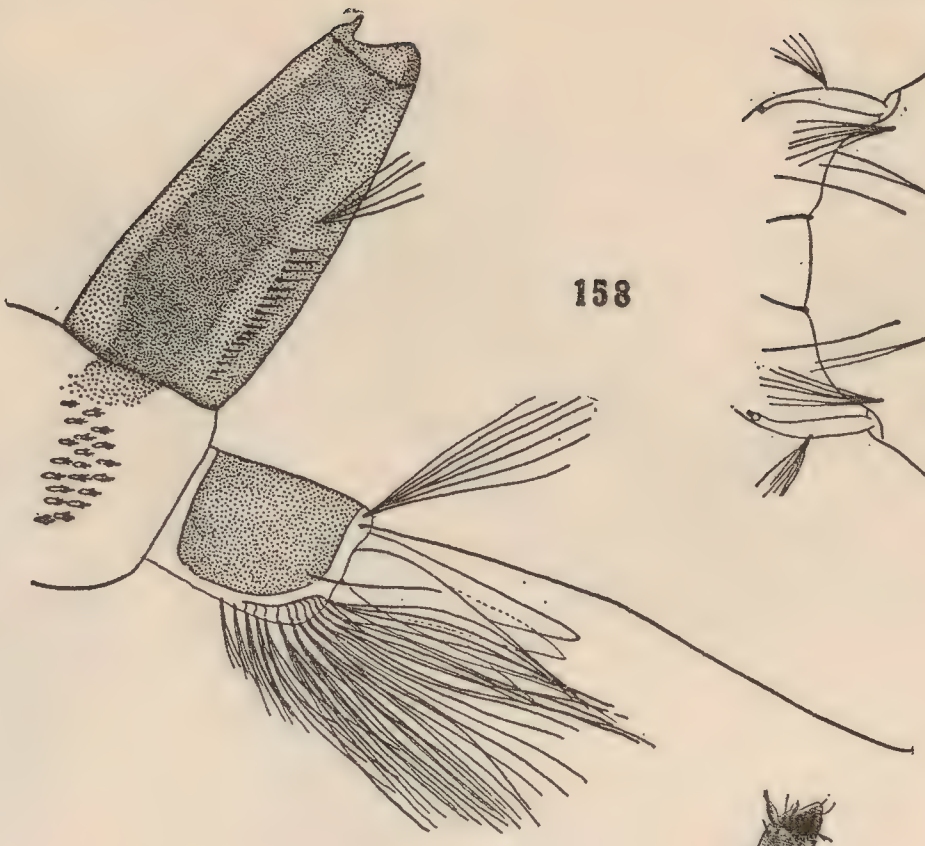

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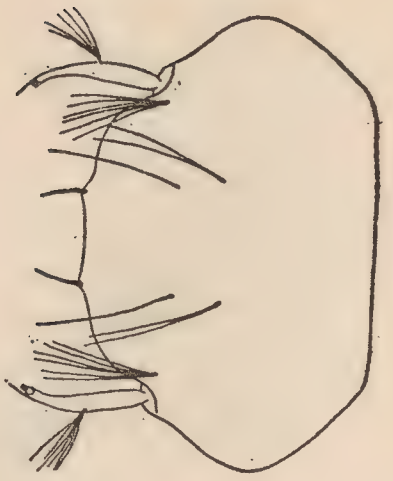

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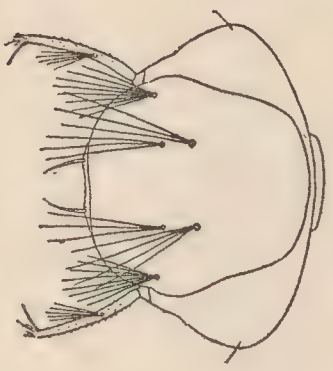

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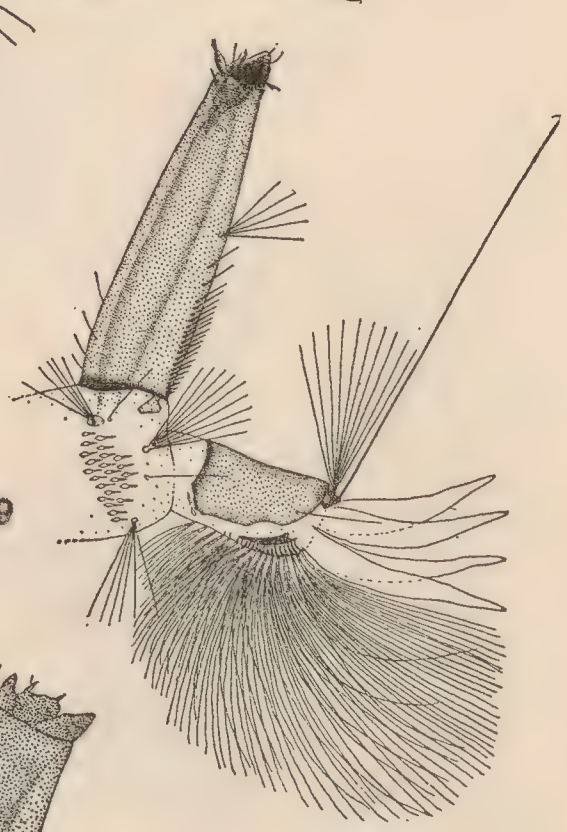

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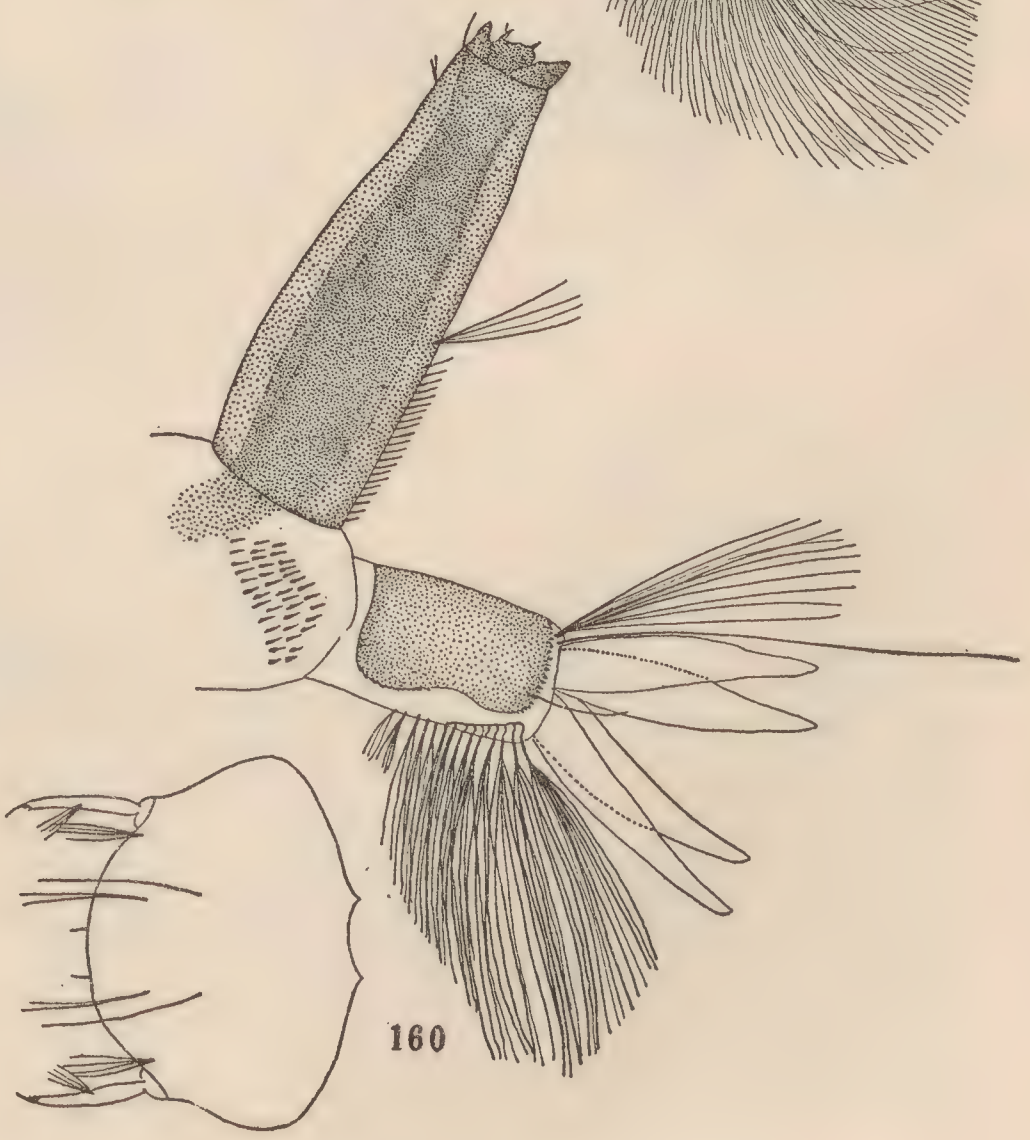
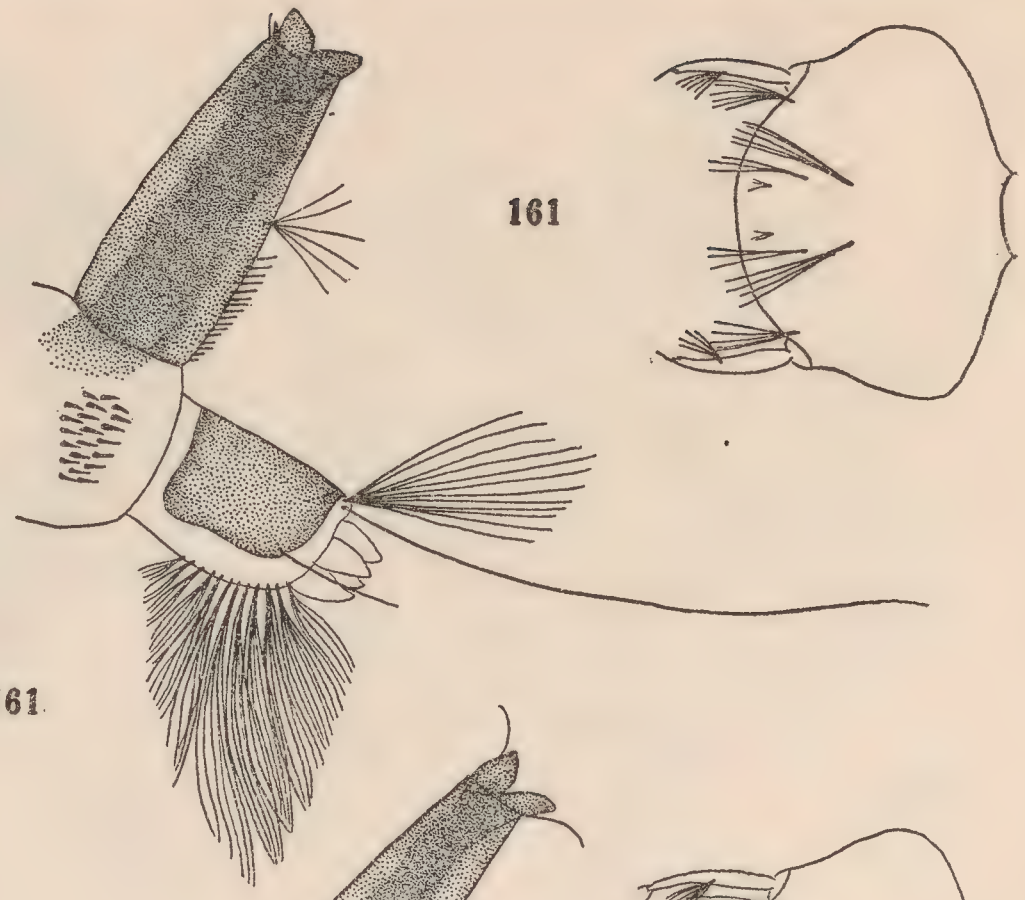


160

158. *Aëdes increpitus* Dyar, male hypopygium and larva
159. *Aëdes flavescens* Müll., male hypopygium and larva
160. *Aëdes stimulans* Walk., male hypopygium and larva

161



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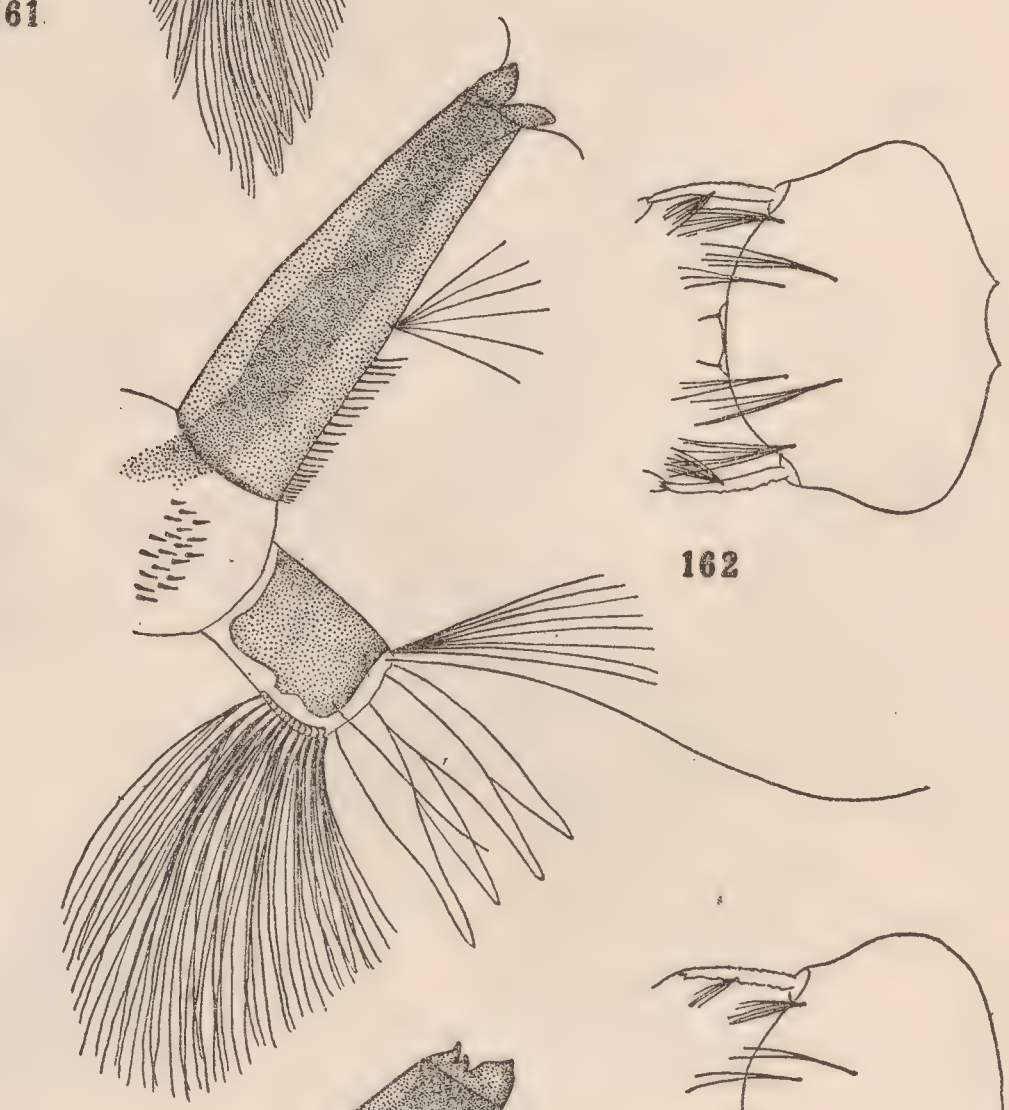

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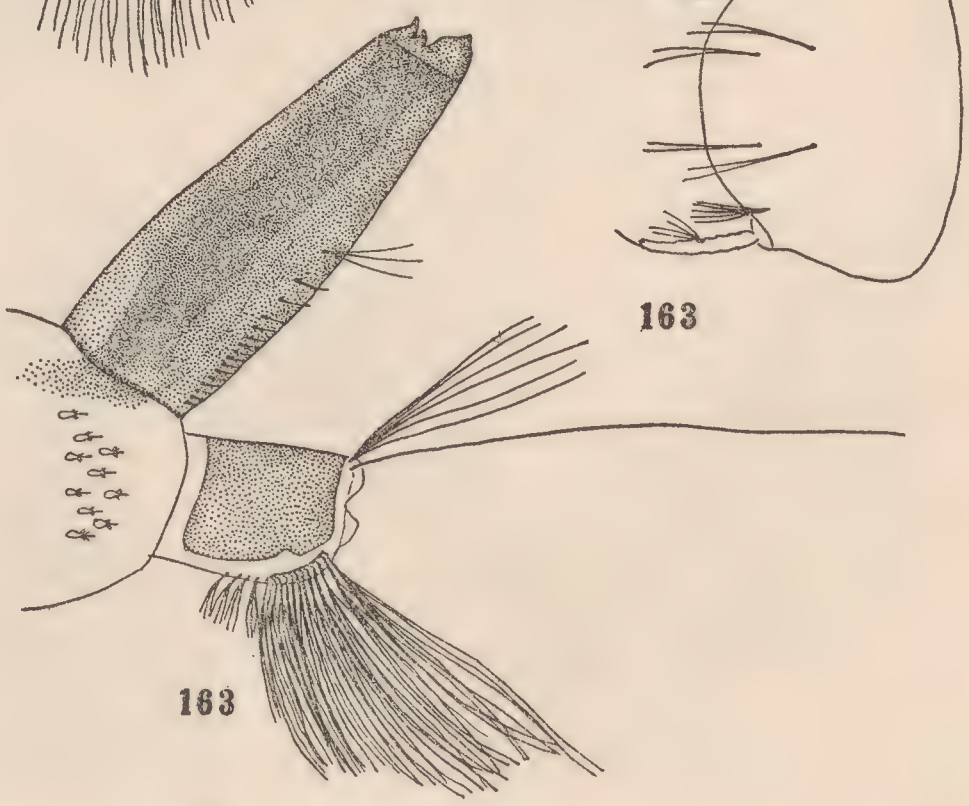
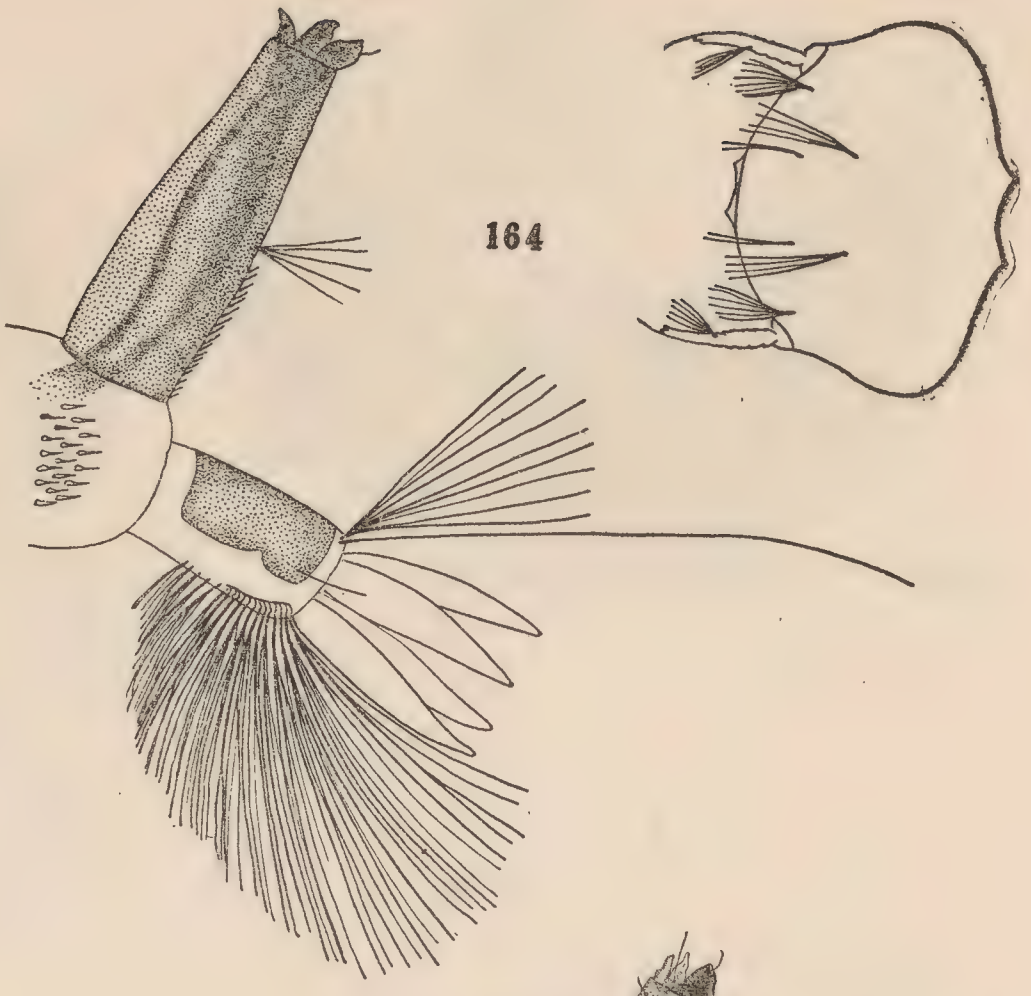
163



163

161. *Aëdes cantator* Coq., male hypopygium and larva
162. *Aëdes fitchii* F. and Y., male hypopygium and larva
163. *Aëdes riparius* D. and K., male hypopygium and larva

164



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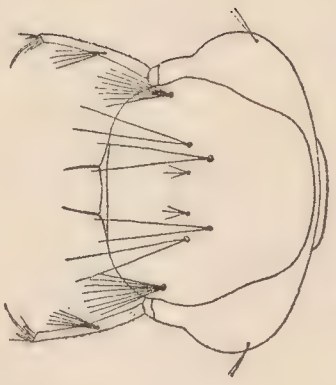
165



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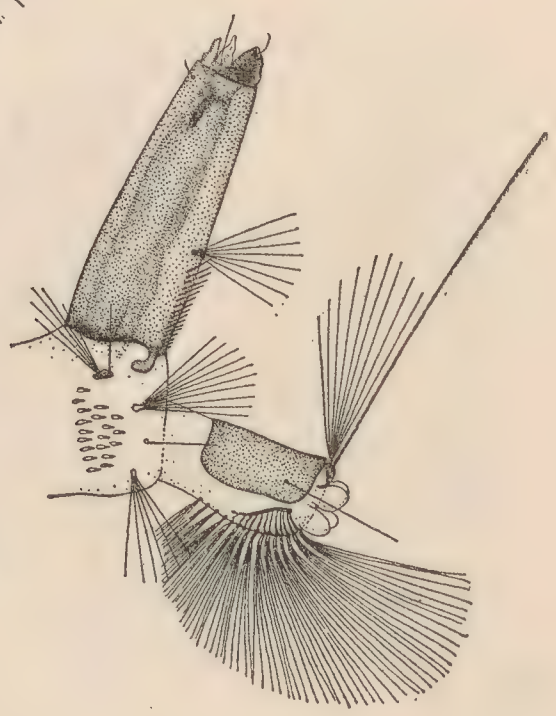

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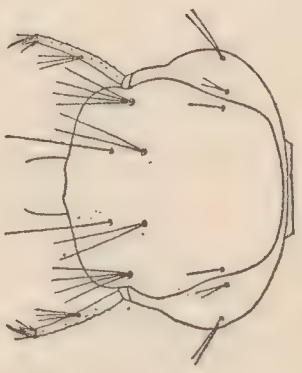

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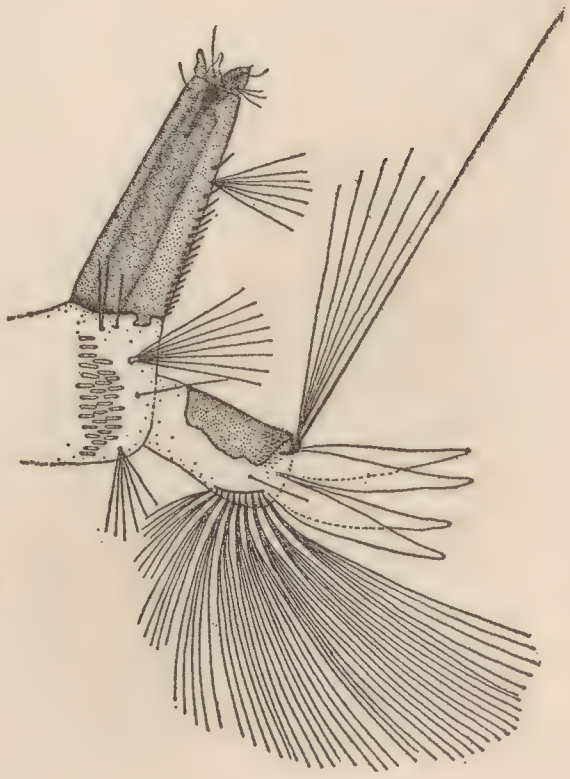
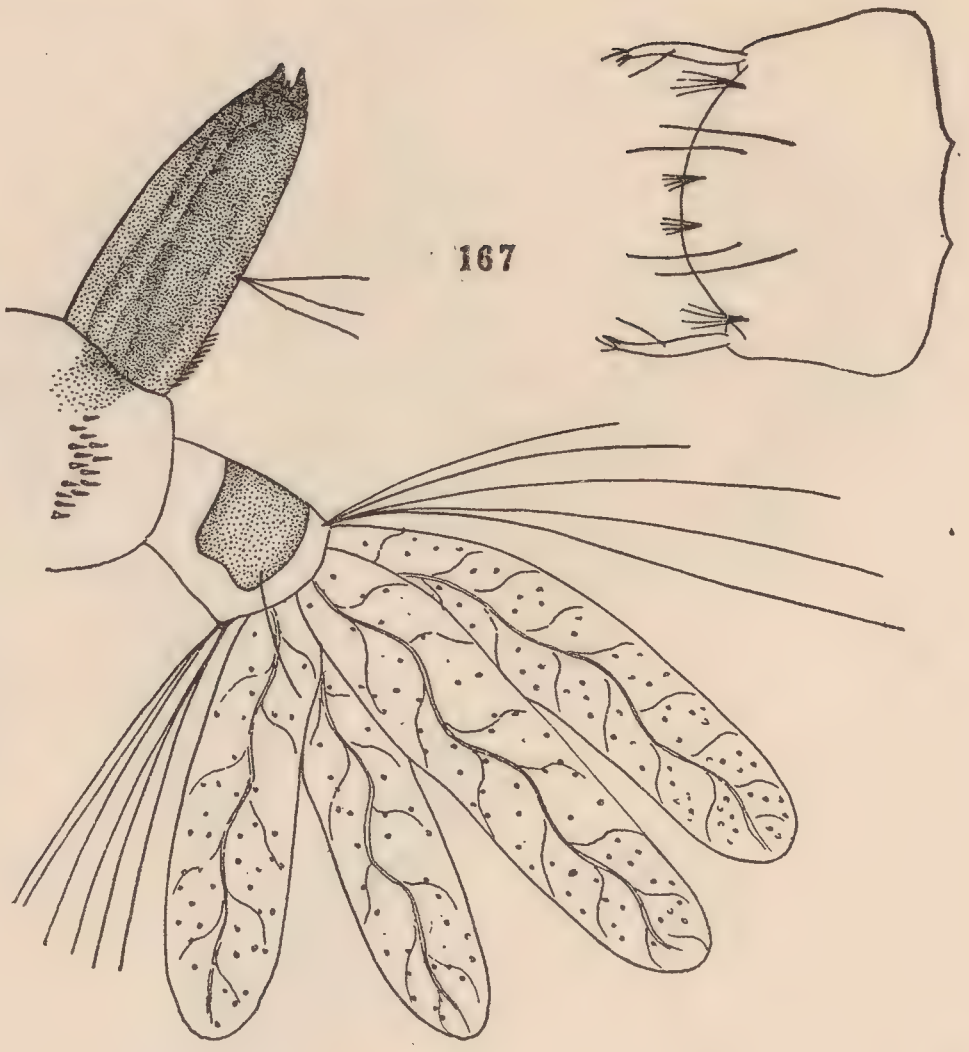


164. *Aëdes grossbecki* D. and K., male hypopygium and larva
165. *Aëdes squamiger* Coq., male hypopygium and larva
166. *Aëdes atropalpus* Coq., male hypopygium and larva

167



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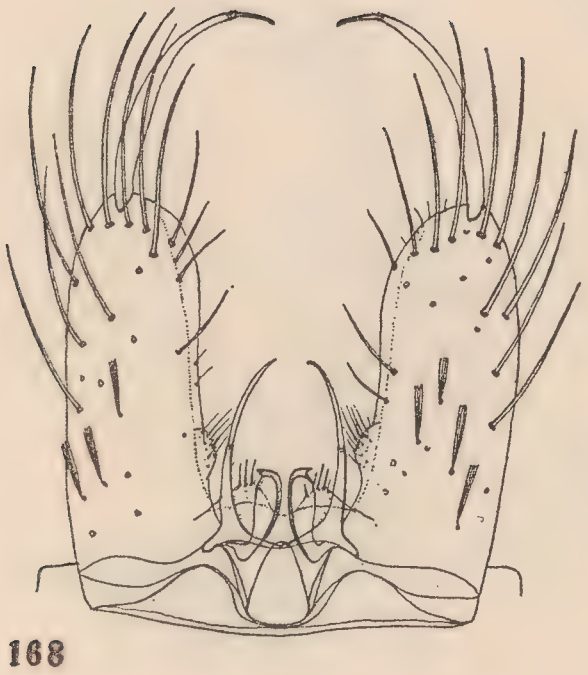

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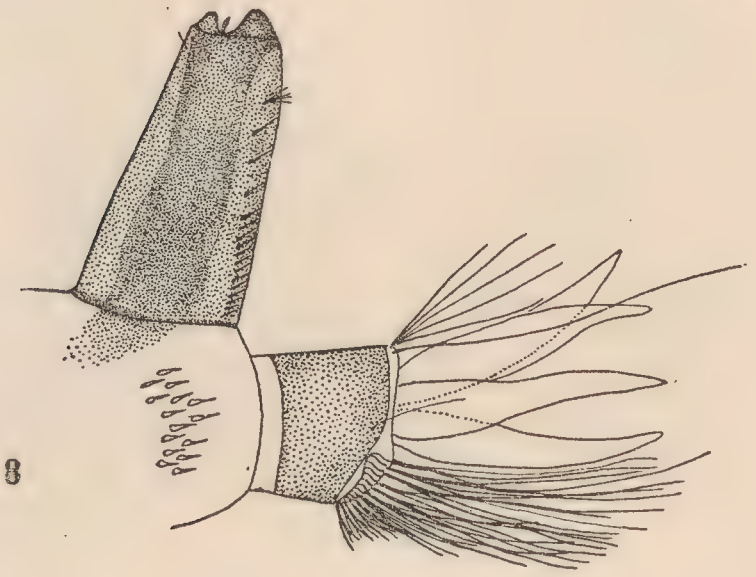

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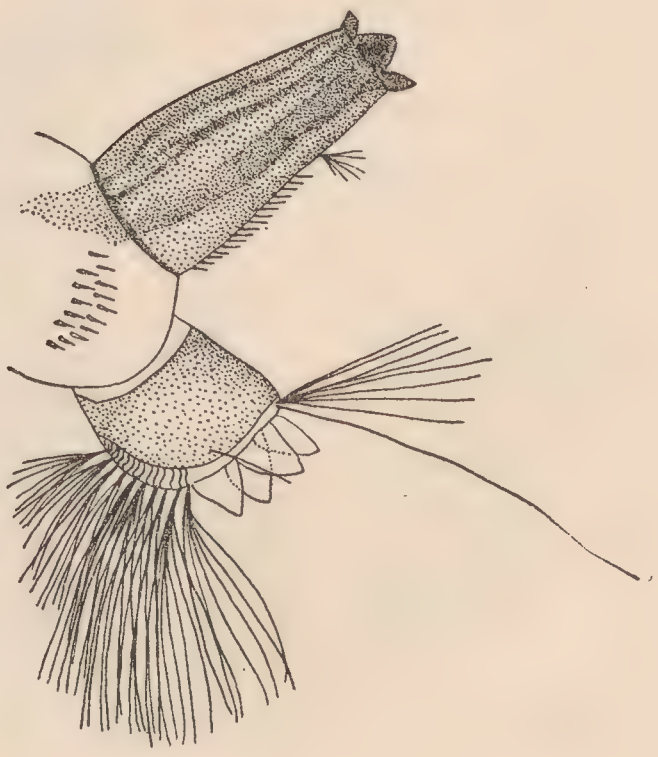
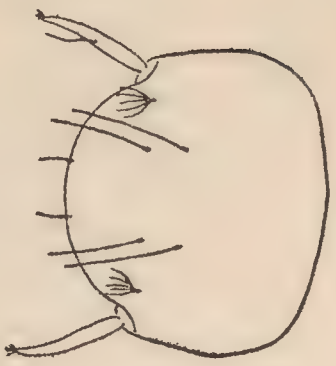
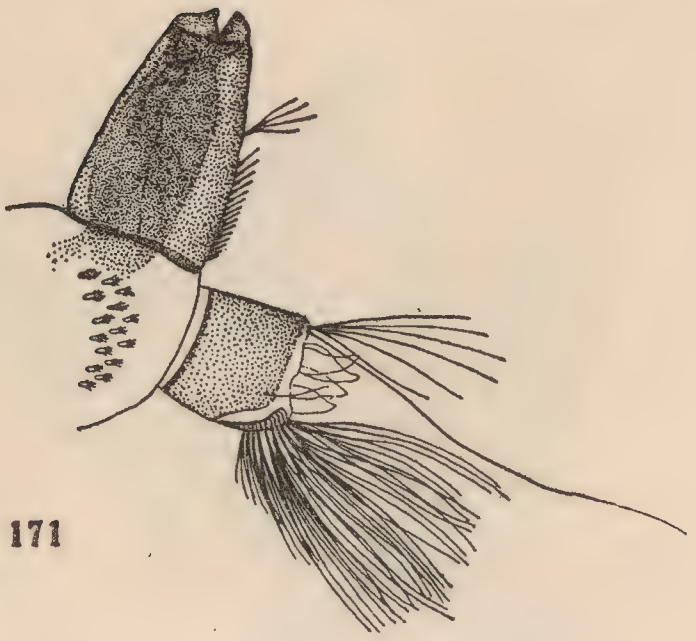


167. *Aëdes varipalpus* Coq., male hypopygium and larva
168. *Aëdes nigromaculis* Ludl., male hypopygium and larva
169. *Aëdes sollicitans* Walk., male hypopygium and larva

171





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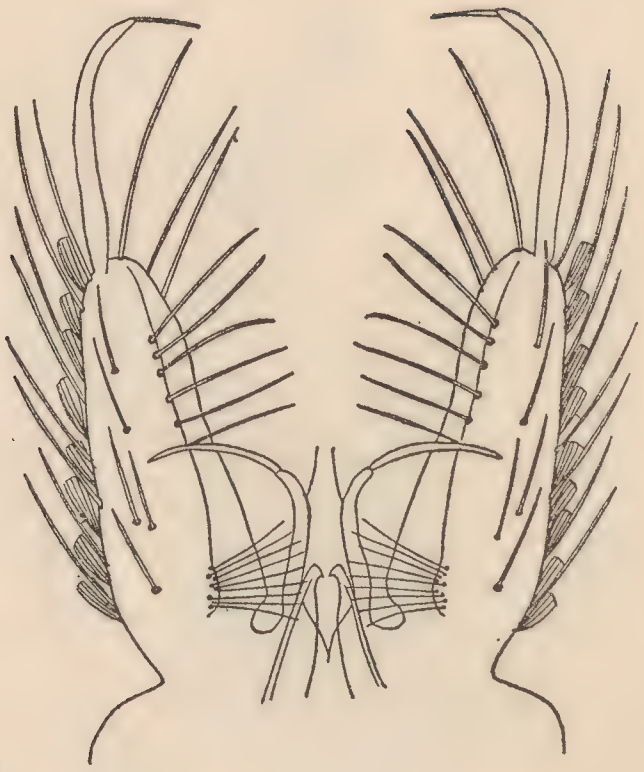

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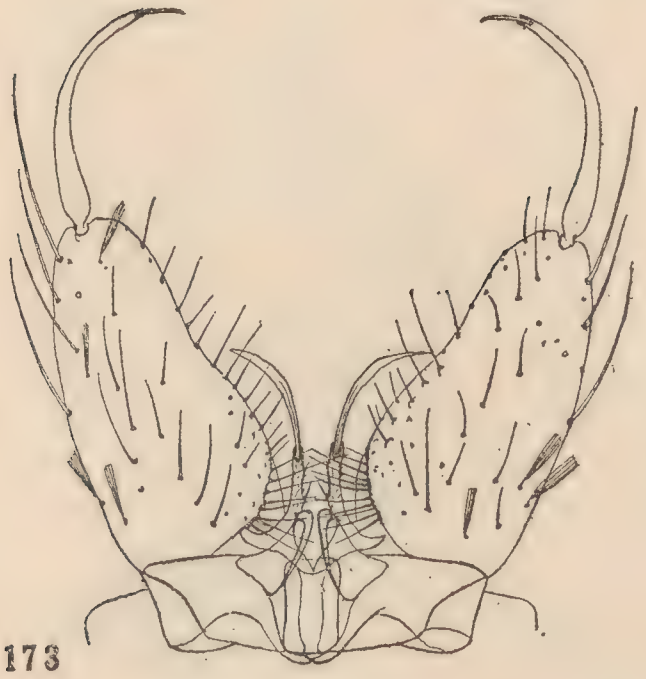

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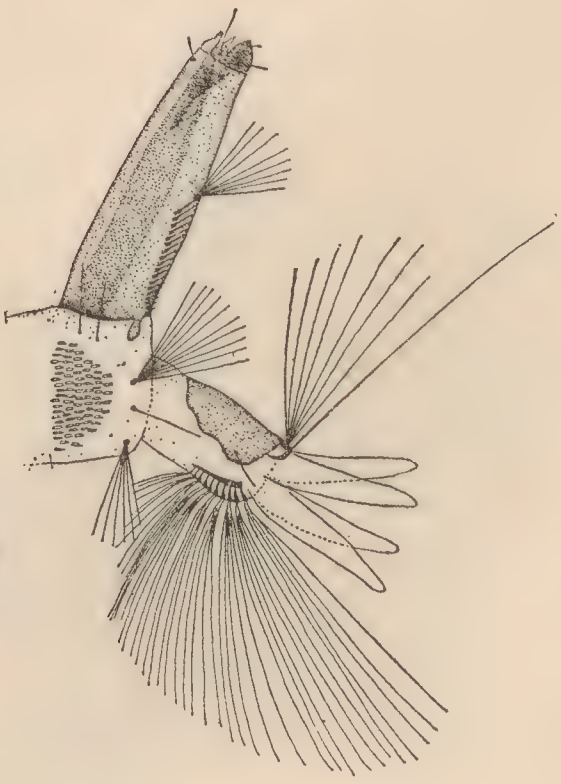
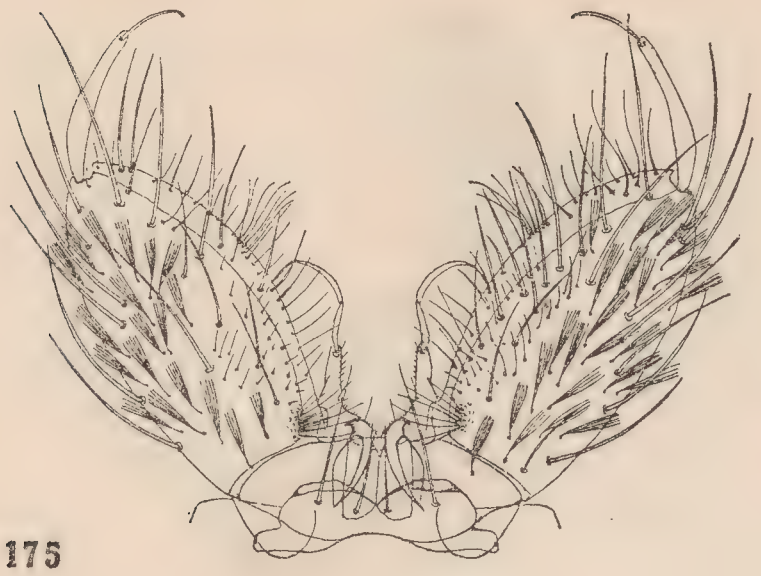


171. *Aëdes tæniorhynchus* Wied., male hypopygium and larva
172. *Aëdes fluviatilis* Lutz, male hypopygium
173. *Aëdes lithœcetor* D. and K., male hypopygium and larva
174. *Aëdes perichares* Dyar, male hypopygium



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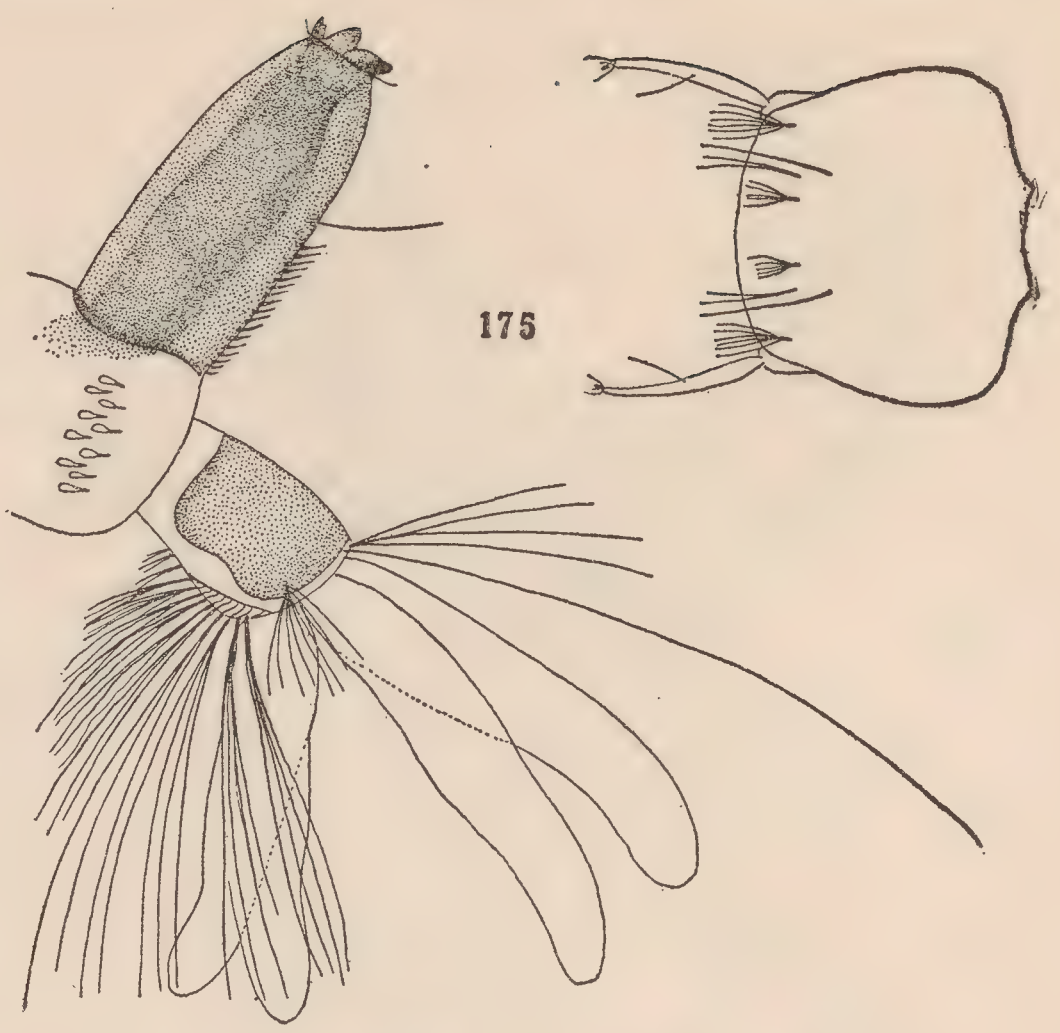

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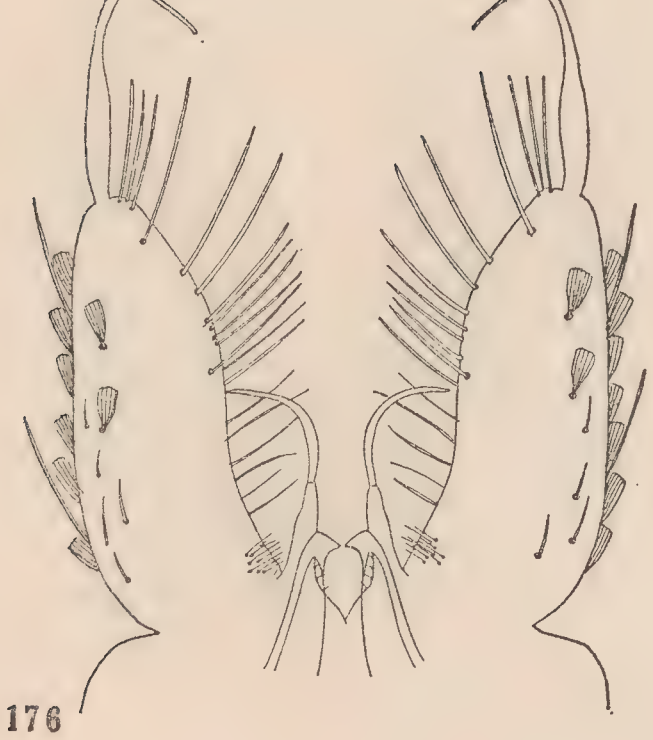

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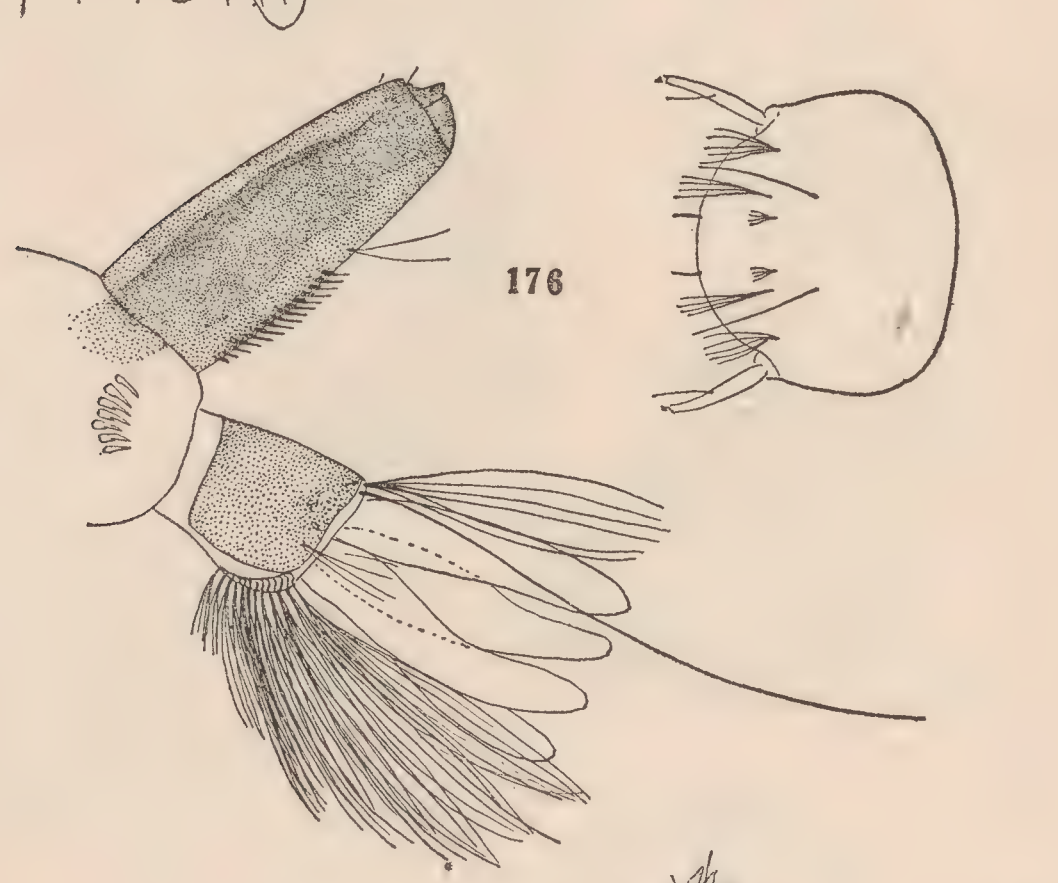

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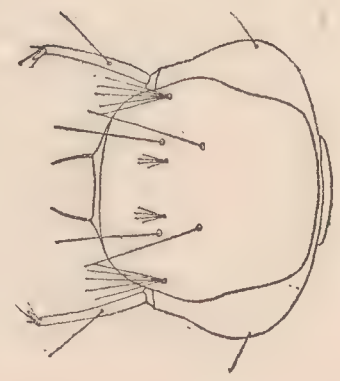

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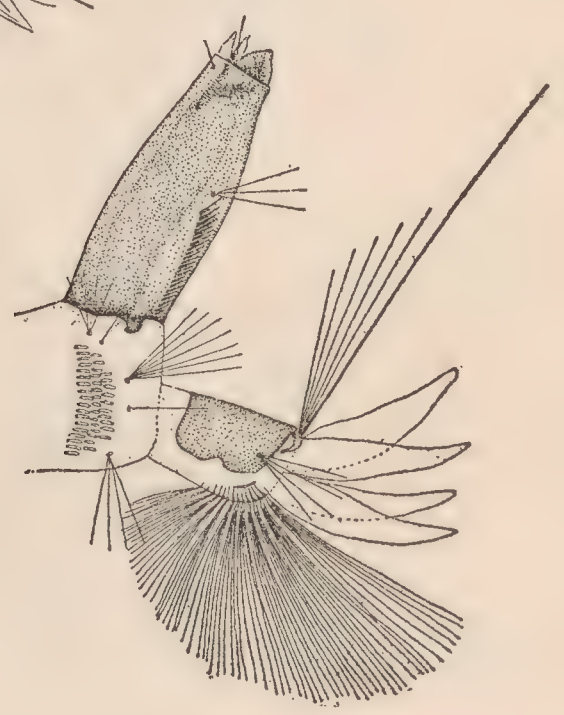
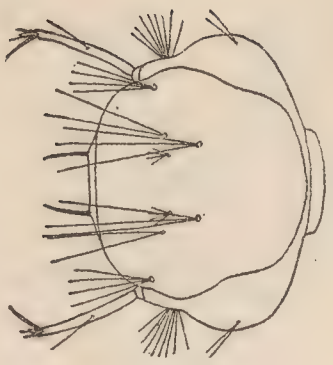


175. *Aëdes triseriatus* Say, male hypopygium and larva
176. *Aëdes alleni* Turner, male hypopygium and larva
177. *Aëdes podographicus* D. and K., male hypopygium and larva

178



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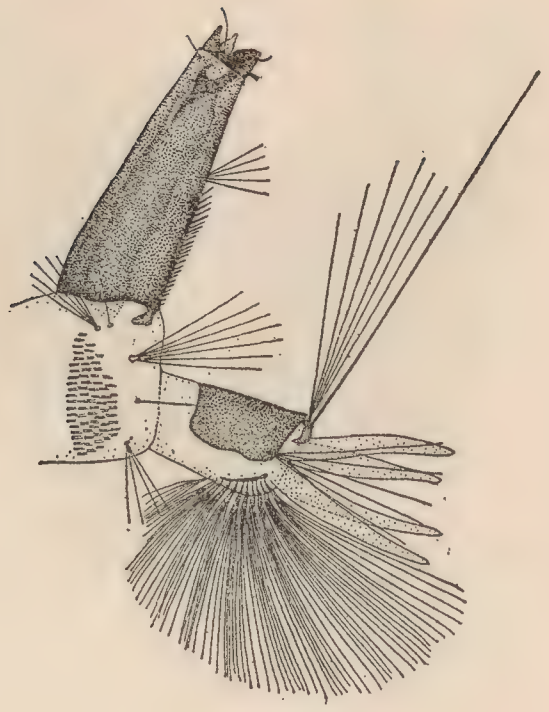

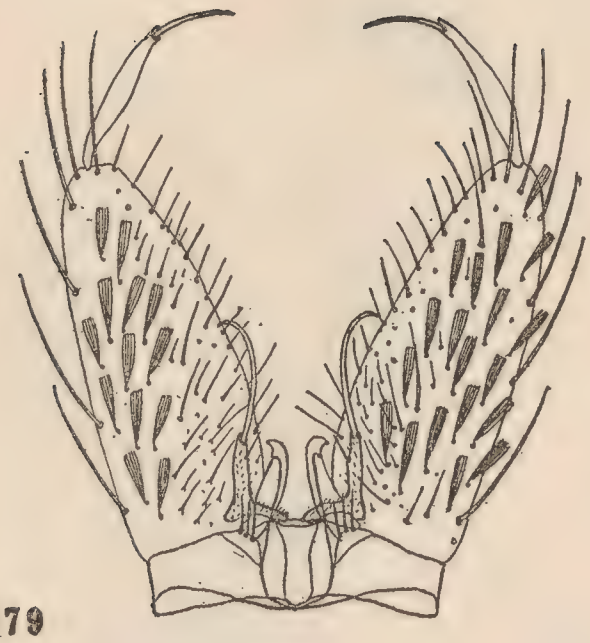

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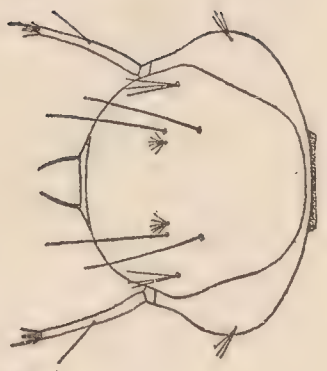

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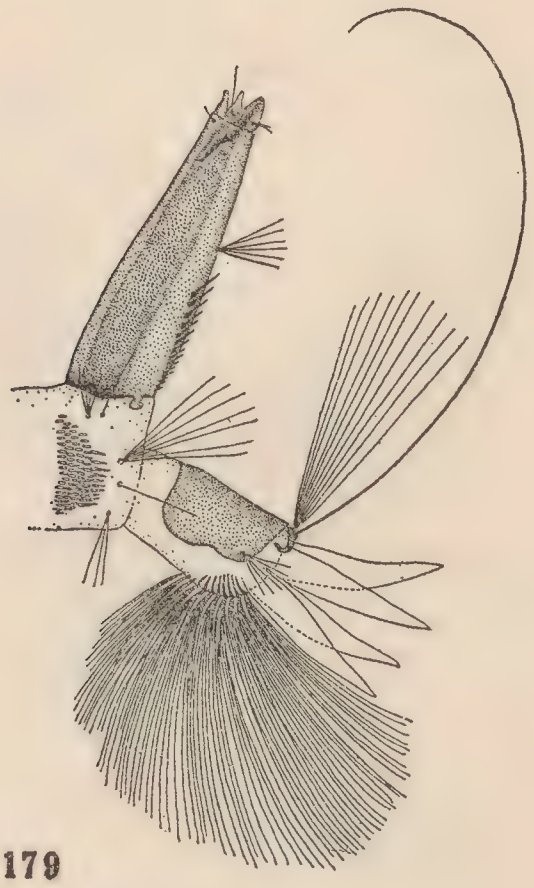

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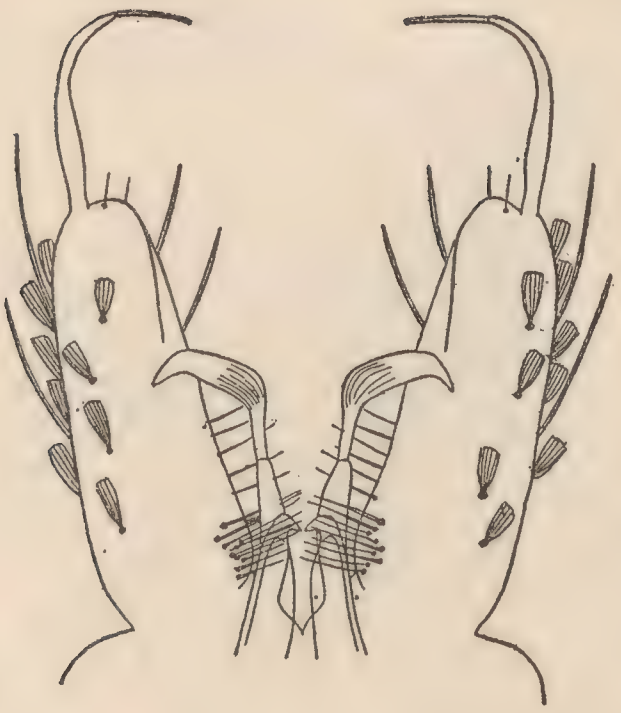

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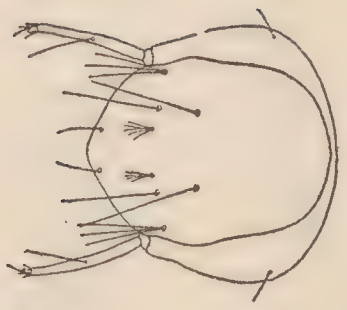

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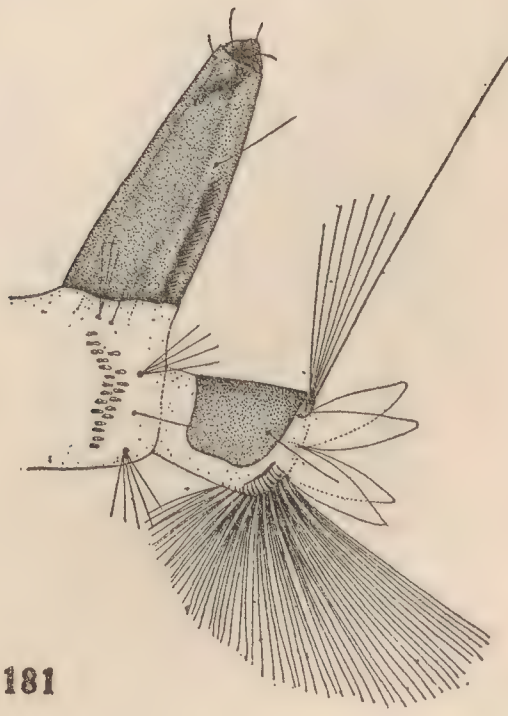
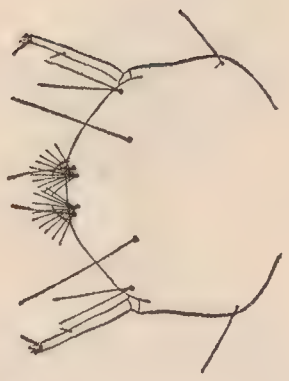


181

178. *Aëdes terrens* Walk., male hypopygium and larva
179. *Aëdes thorntoni* D. and K., male hypopygium and larva
180. *Aëdes argyrothorax* B.-W. and B., male hypopygium
181. *Aëdes knabi* Coq., larva

182



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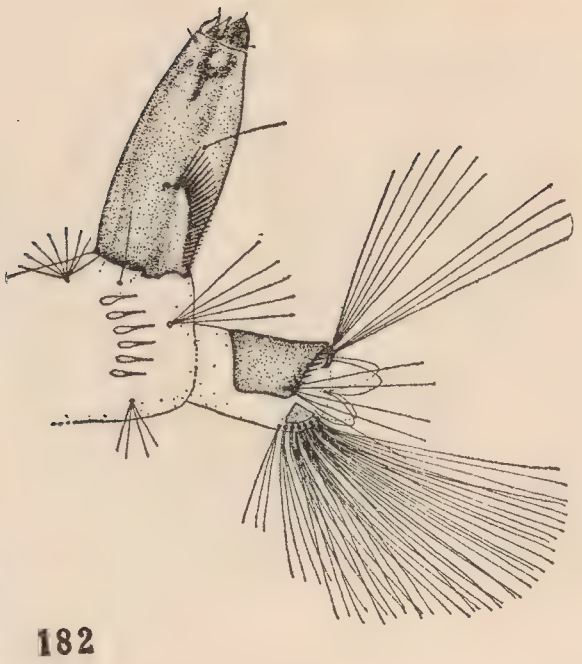

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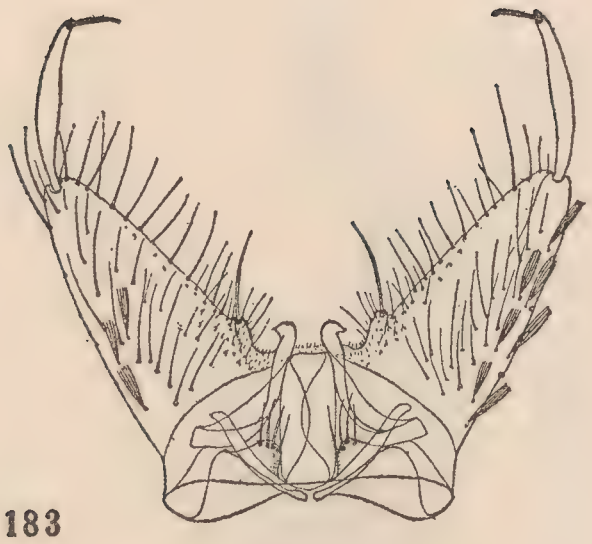

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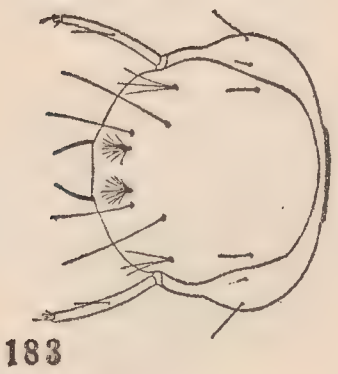

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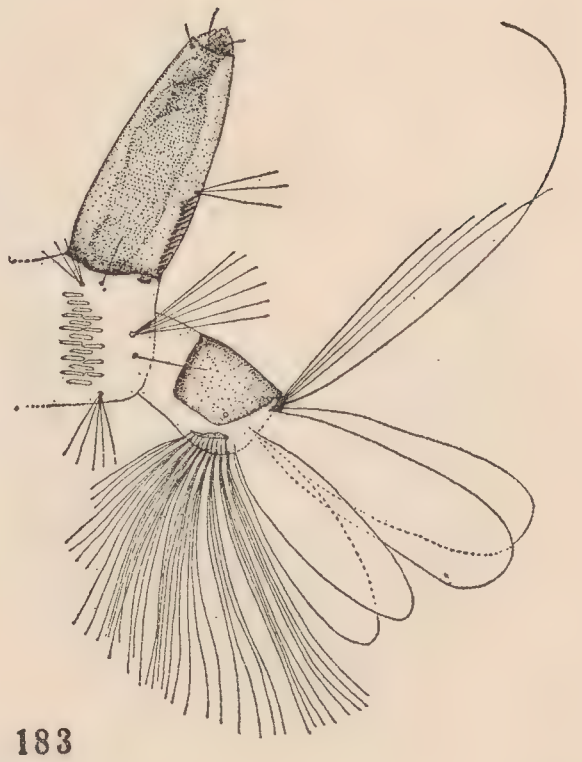

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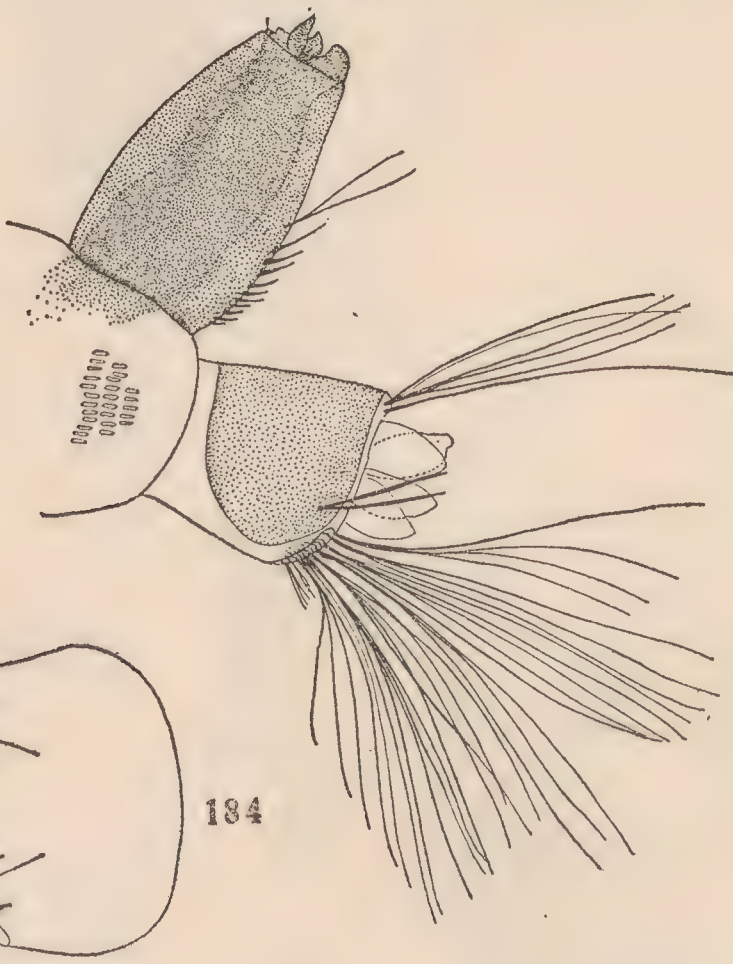
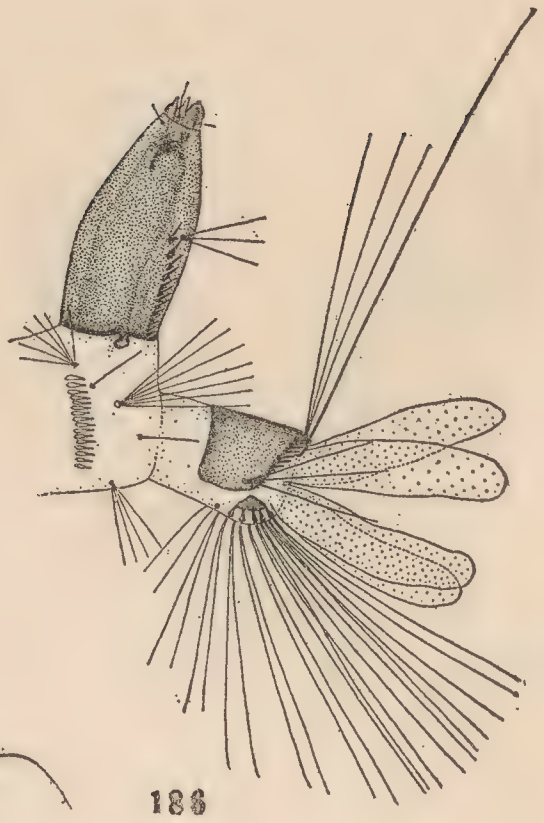


184

182. *Aëdes mediovittatus* Coq., male hypopygium and larva
183. *Aëdes fulvithorax* Lutz, male hypopygium and larva
184. *Aëdes arborealis* B.-W. and B., male hypopygium and larva

185

186



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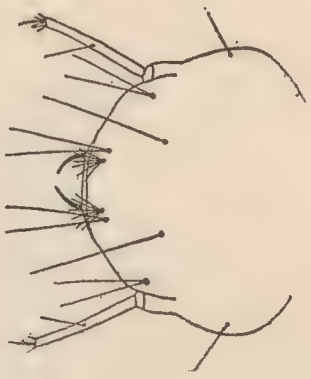

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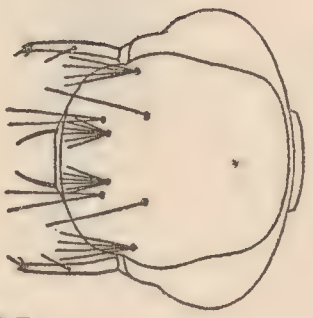

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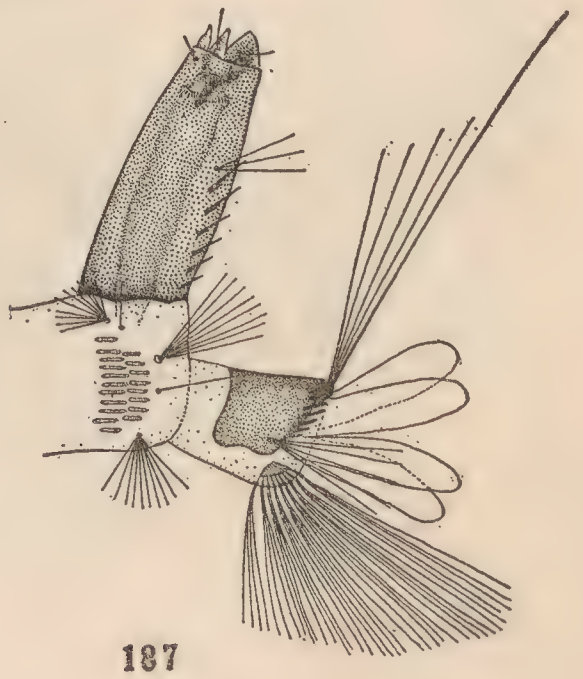

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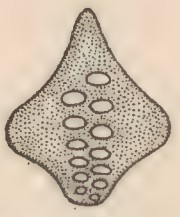

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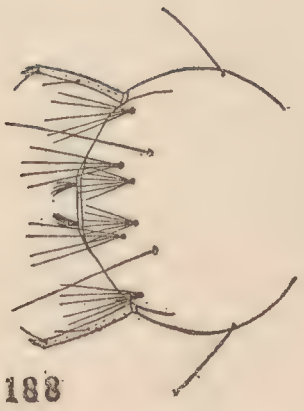

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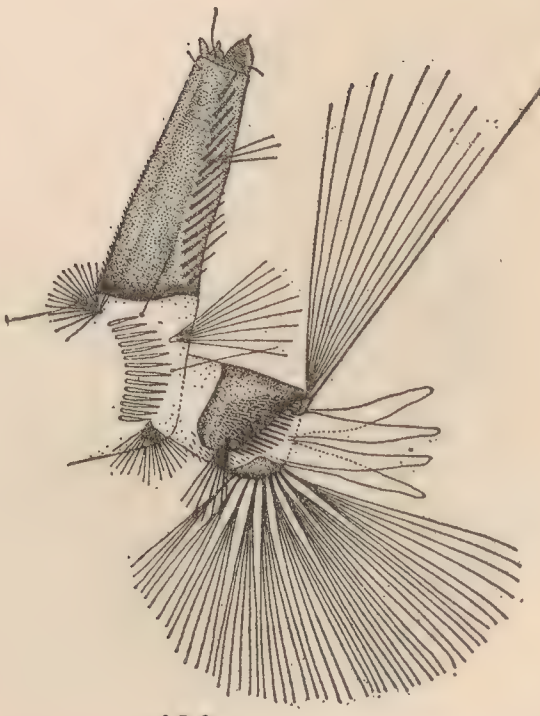
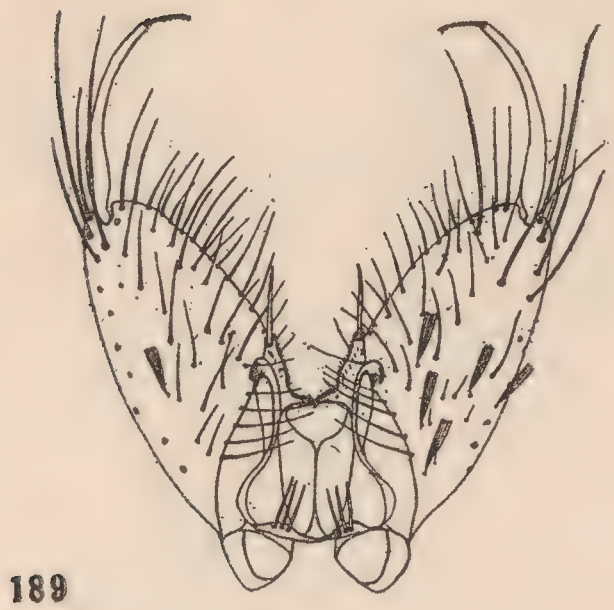


188

185. *Aëdes septemstriatus* D. and K., male hypopygium
186. *Aëdes albonotatus* Coq., male hypopygium and larva
187. *Aëdes busckii* Coq., male hypopygium and larva
188. *Aëdes walkeri* Theob., male hypopygium and larva



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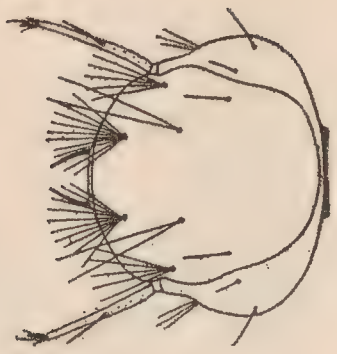

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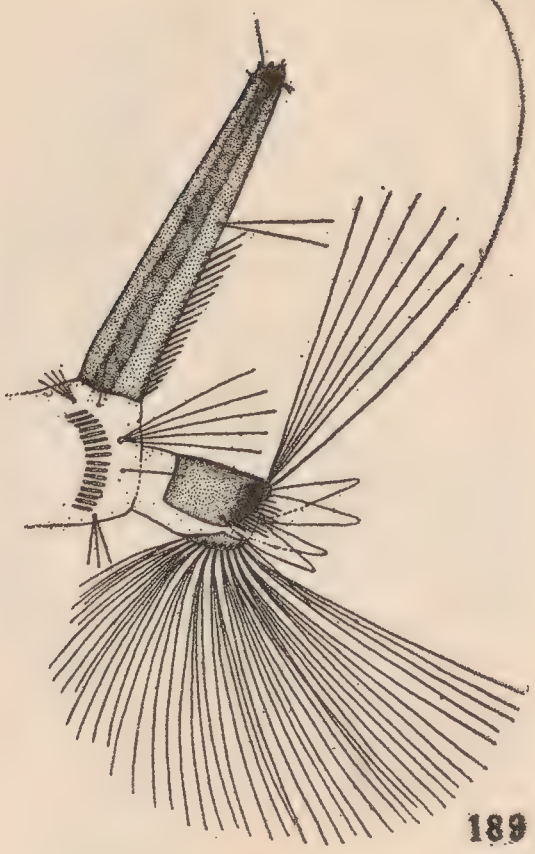

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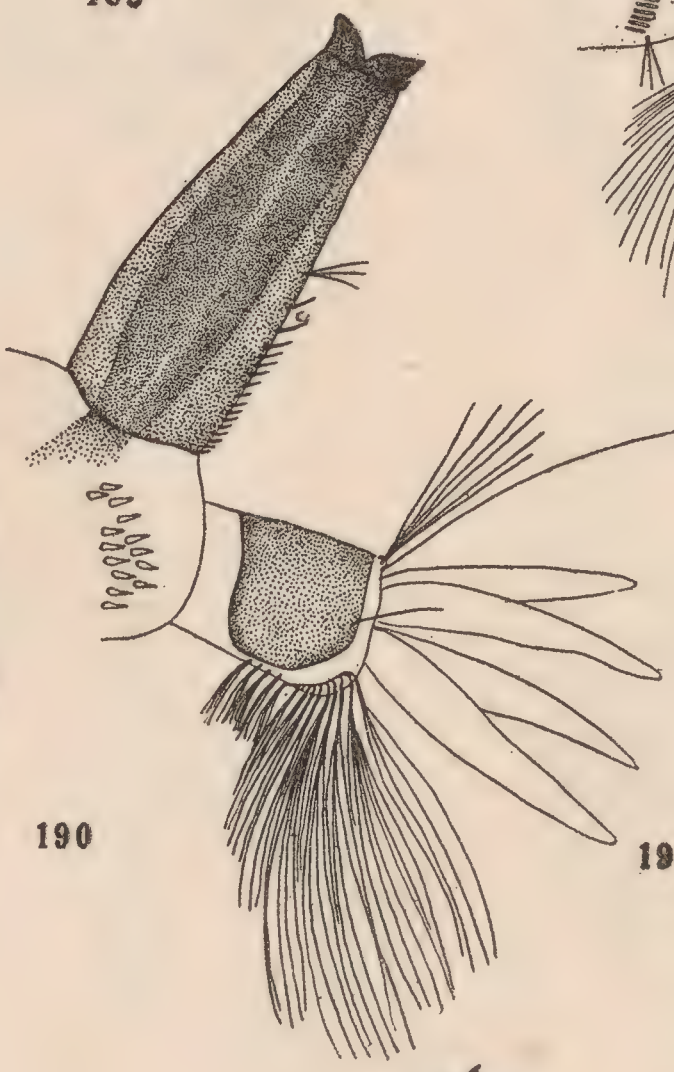

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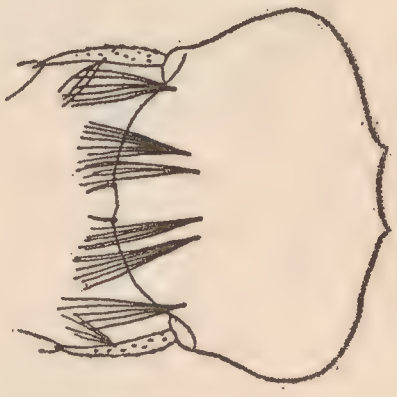

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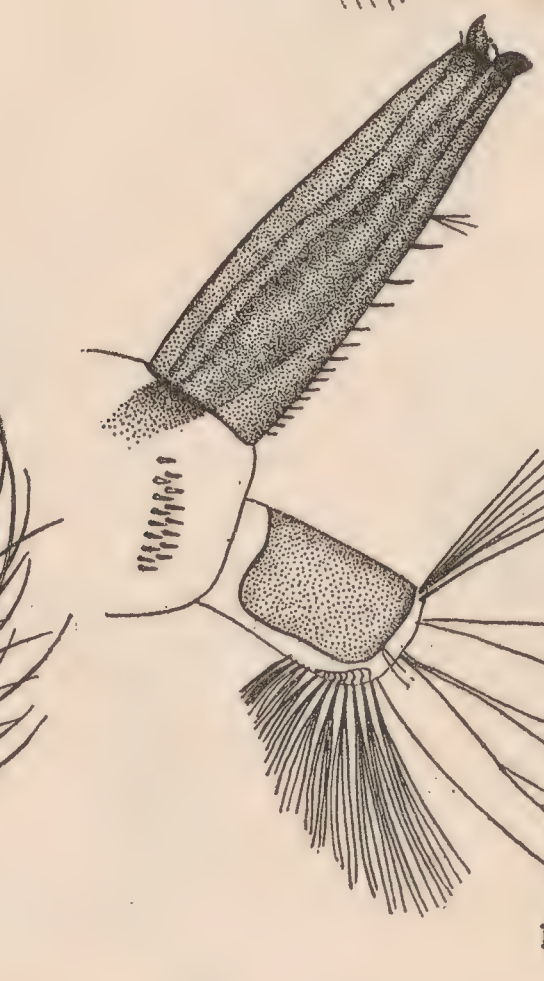
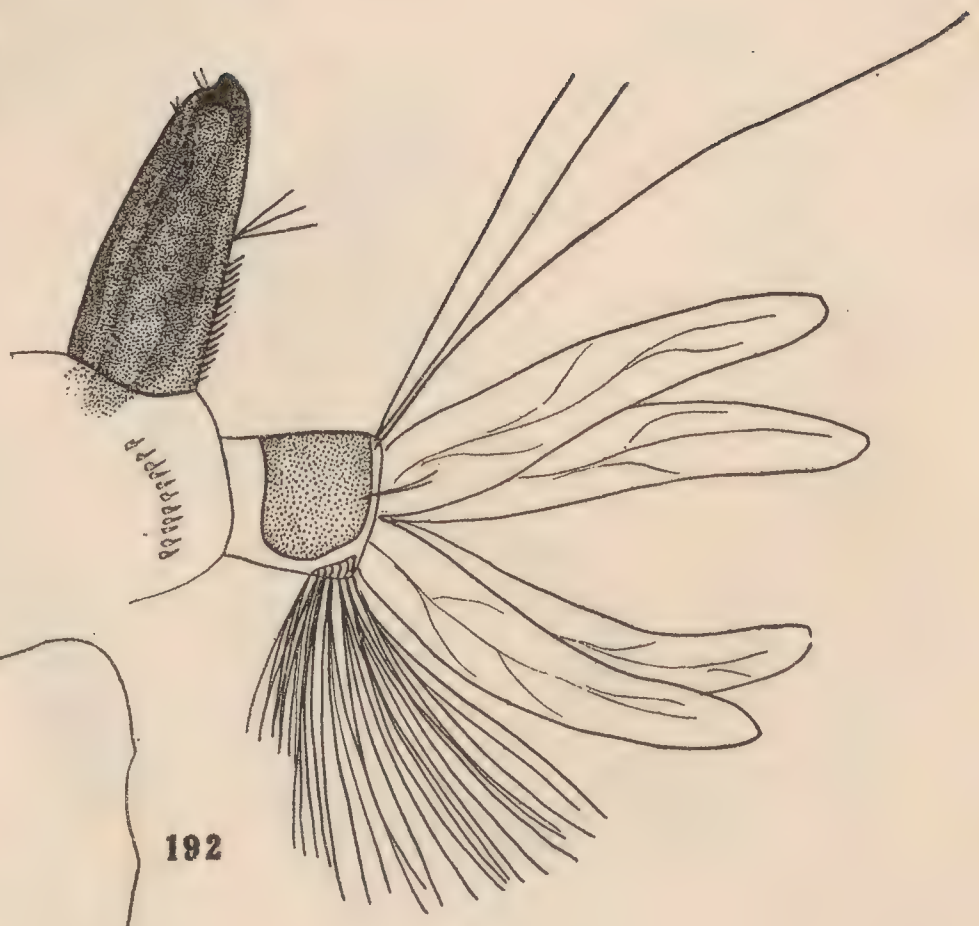
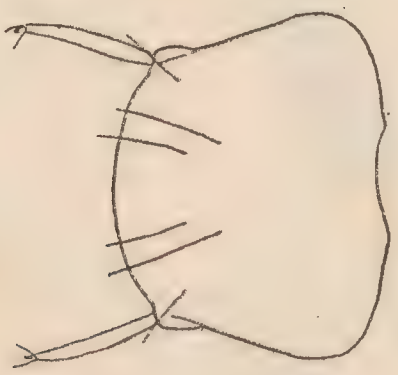
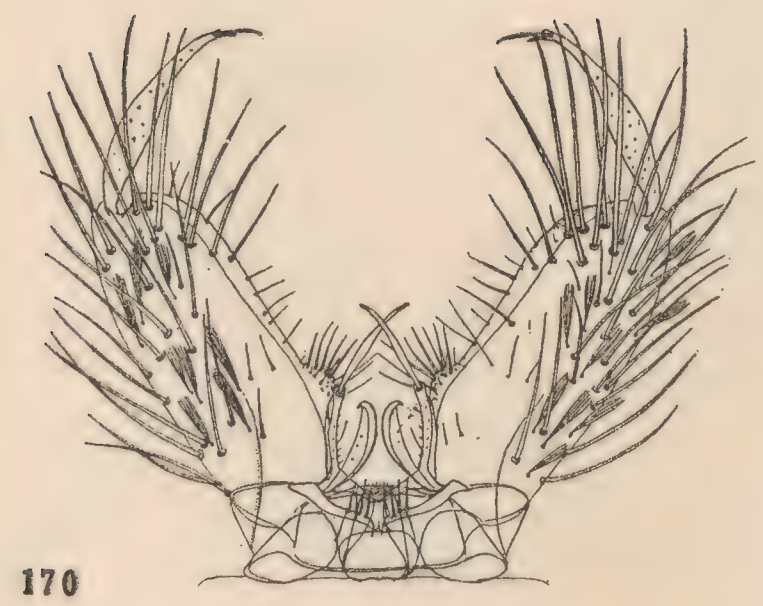


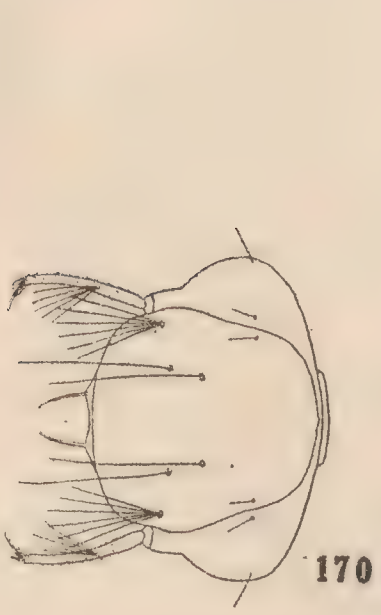
191

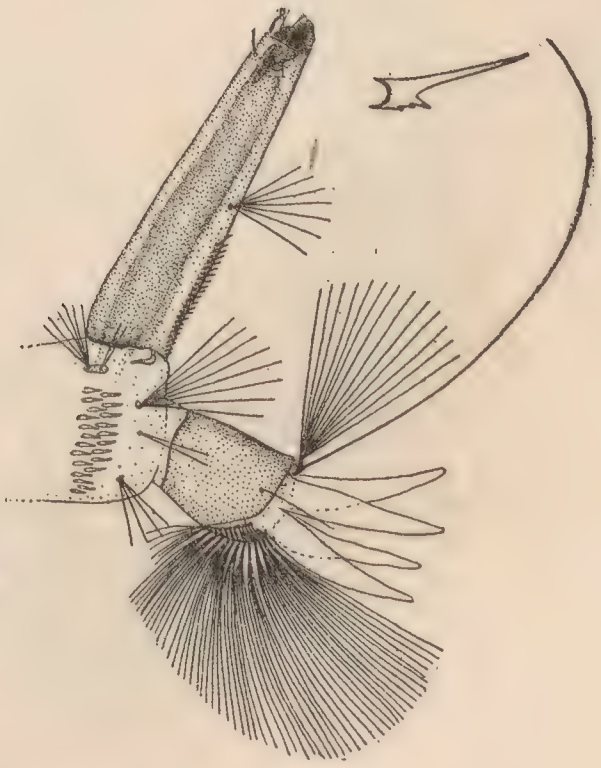
189. *Aëdes aurites* Theobald, male hypopygium and larva
190. *Aëdes vexans* Meig., male hypopygium and larva
191. *Aëdes cinereus* Meig., male hypopygium and larva



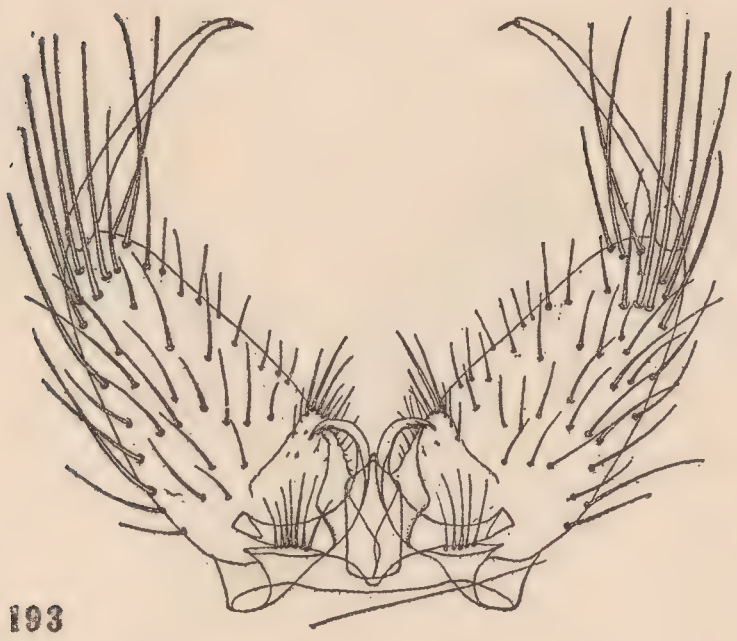








170. *Aëdes mitchellæ* Dyar, male hypopygium and larva
192. *Aëdes ægypti* Linn., male hypopygium and larva



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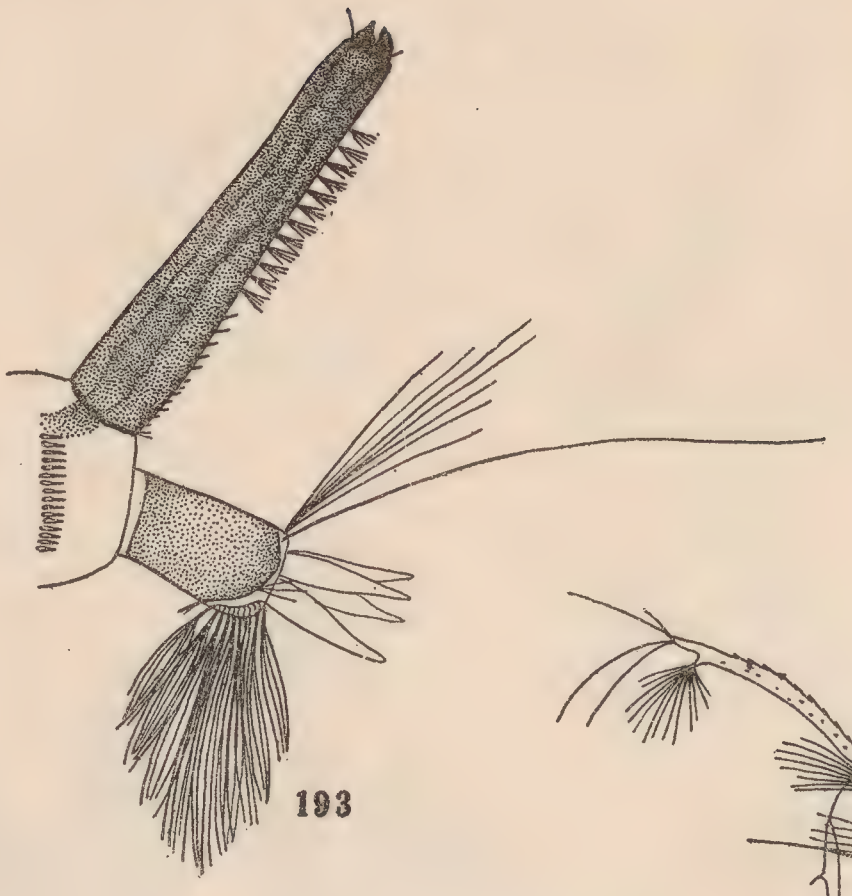

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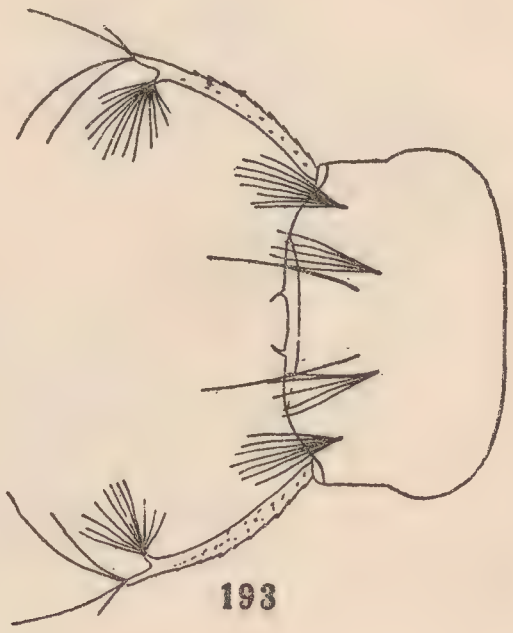

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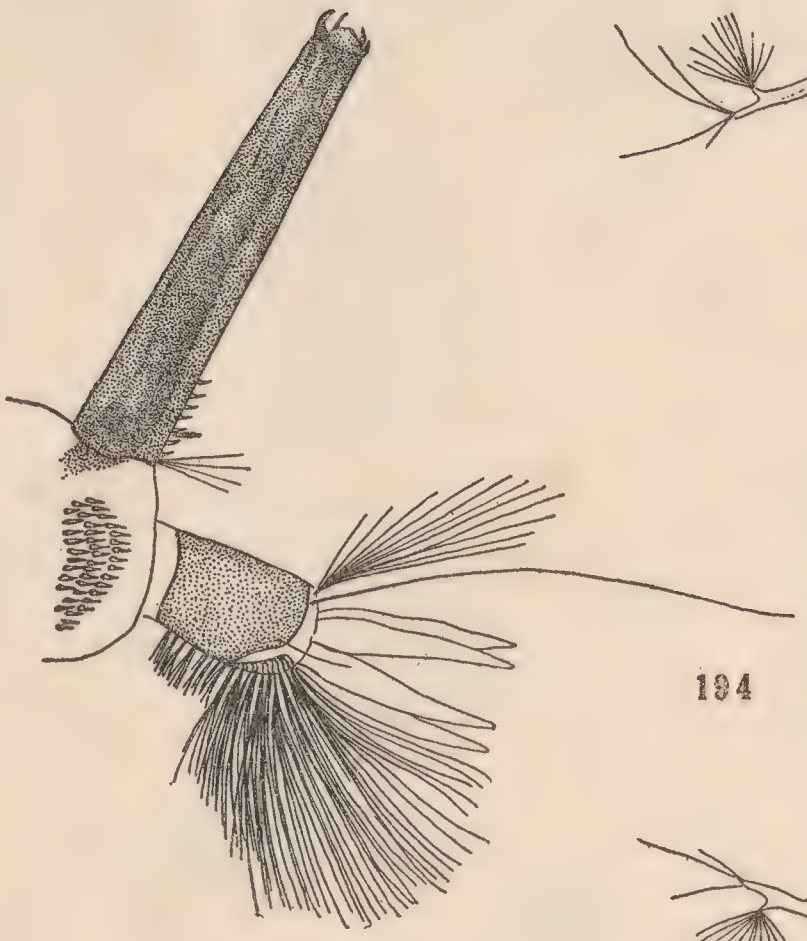

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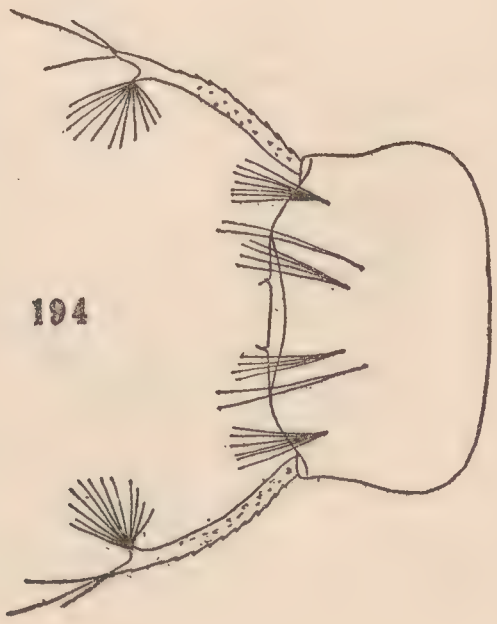
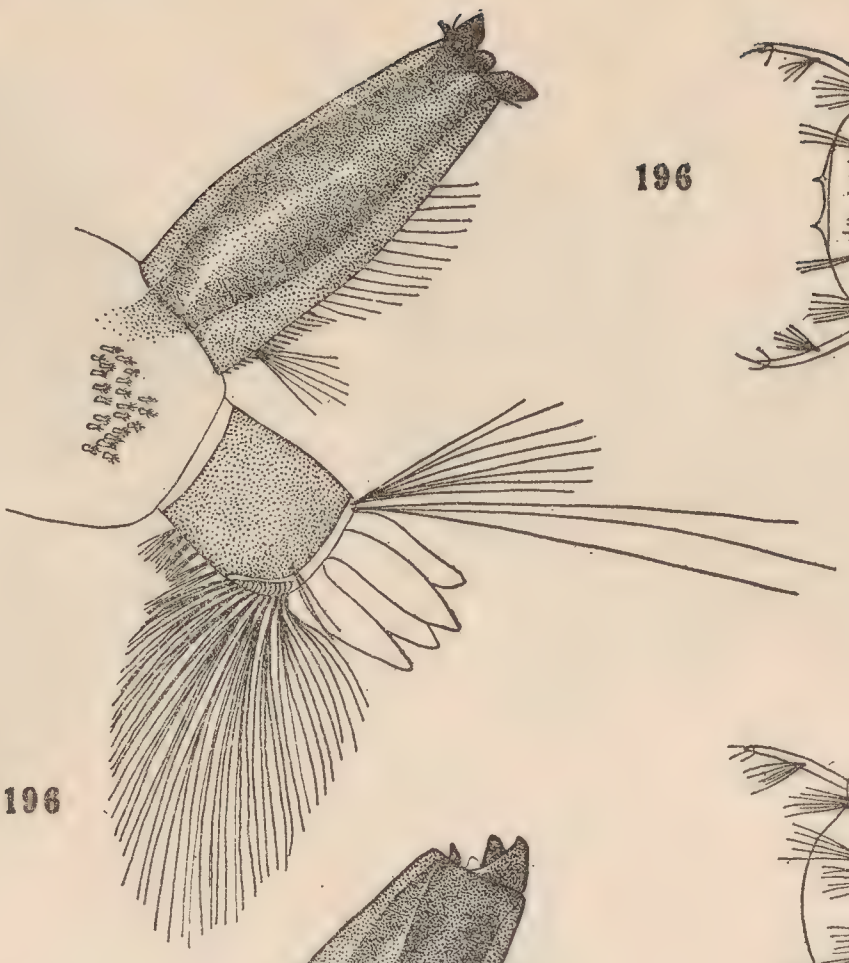


194

195

193. *Culicella melanura* Coq., male hypopygium and larva
194. *Culicella dyari* Coq., male hypopygium and larva
195. *Culicella parodites* Dyar, male hypopygium

196



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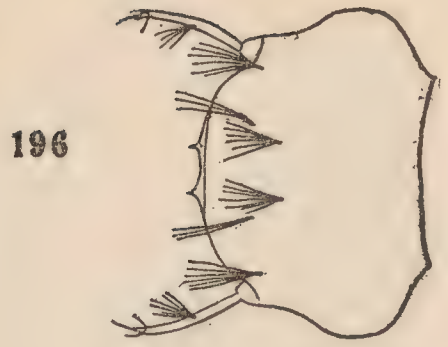

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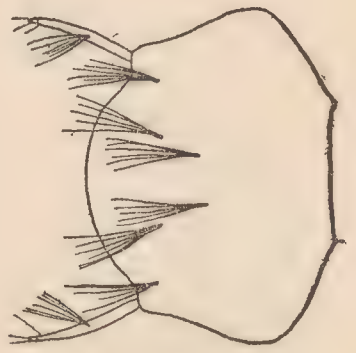

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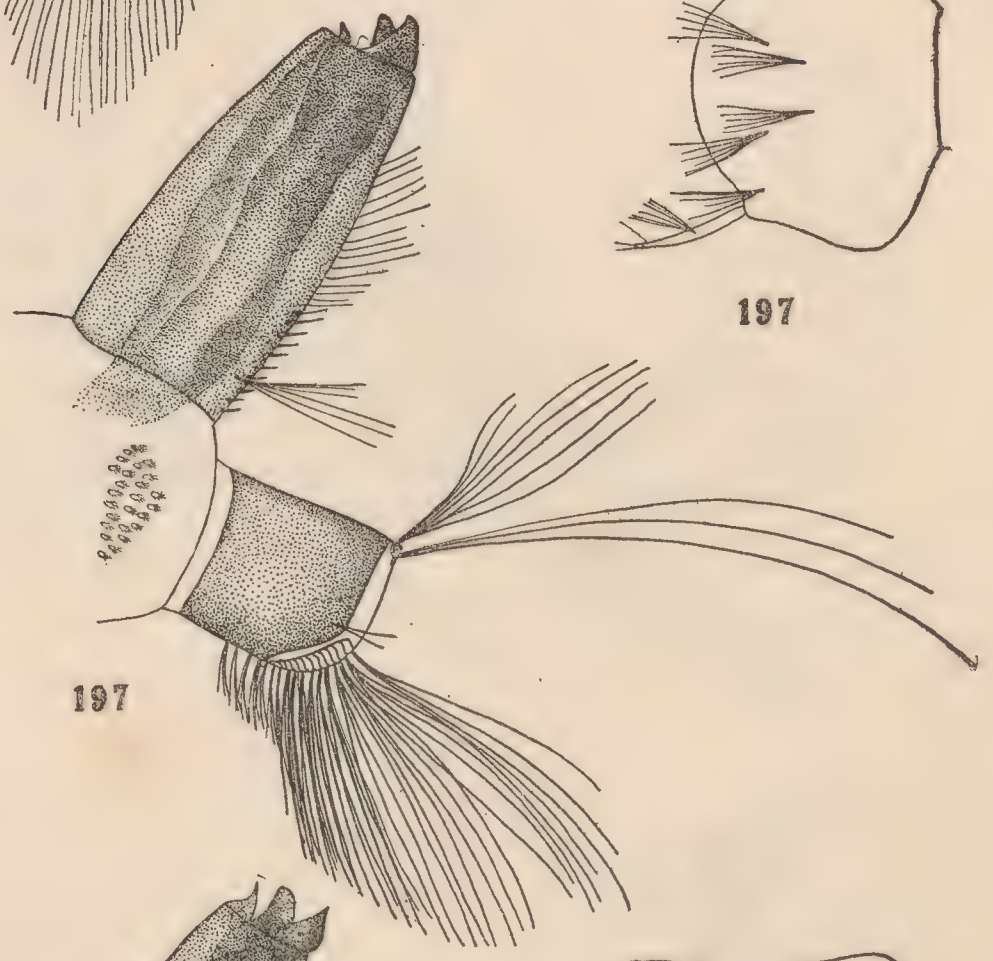

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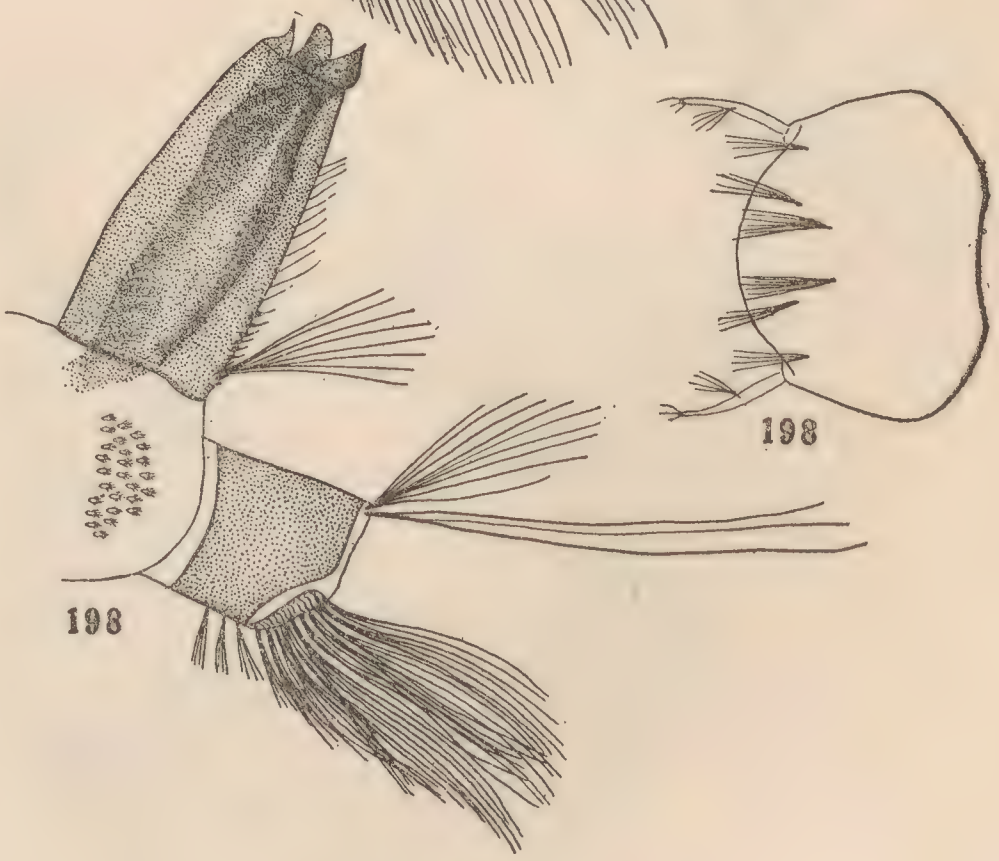
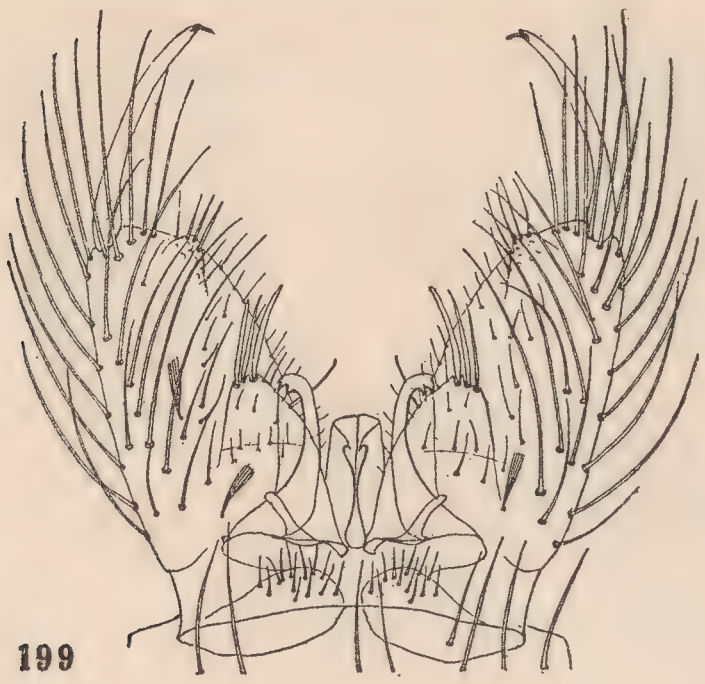


198

198

196. *Culicella inornata* Will., male hypopygium and larva
197. *Culicella impatiens* Walk., male hypopygium and larva
198. *Culicella incidens* Thom., male hypopygium and larva



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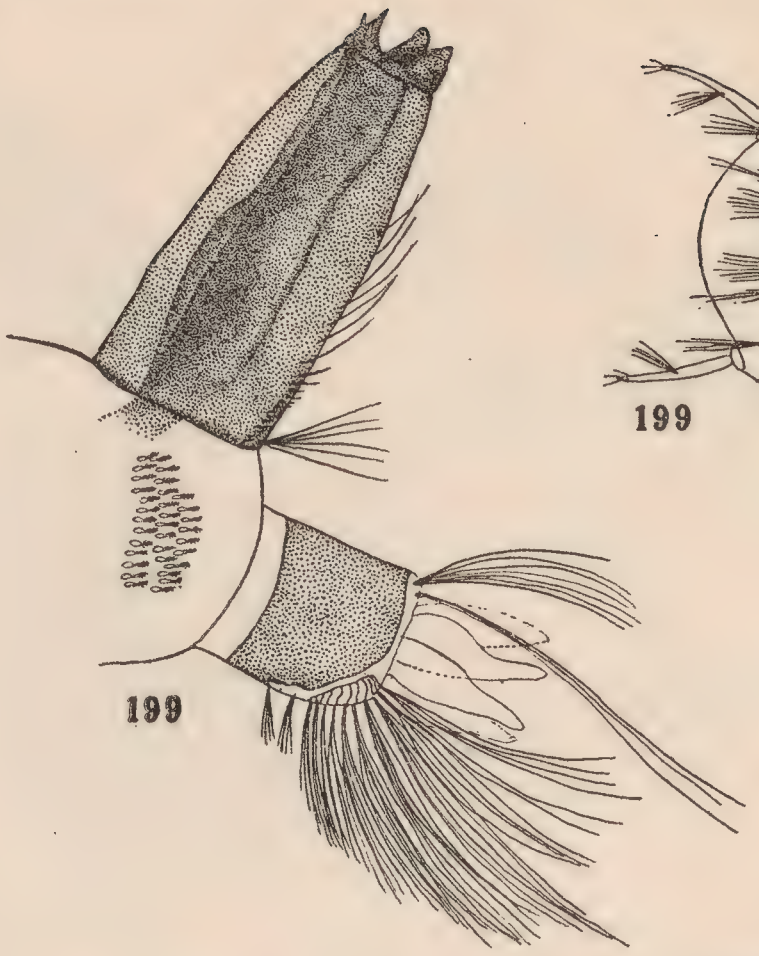

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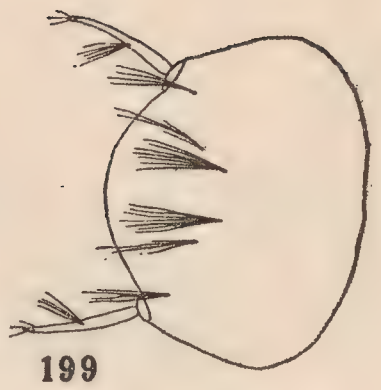

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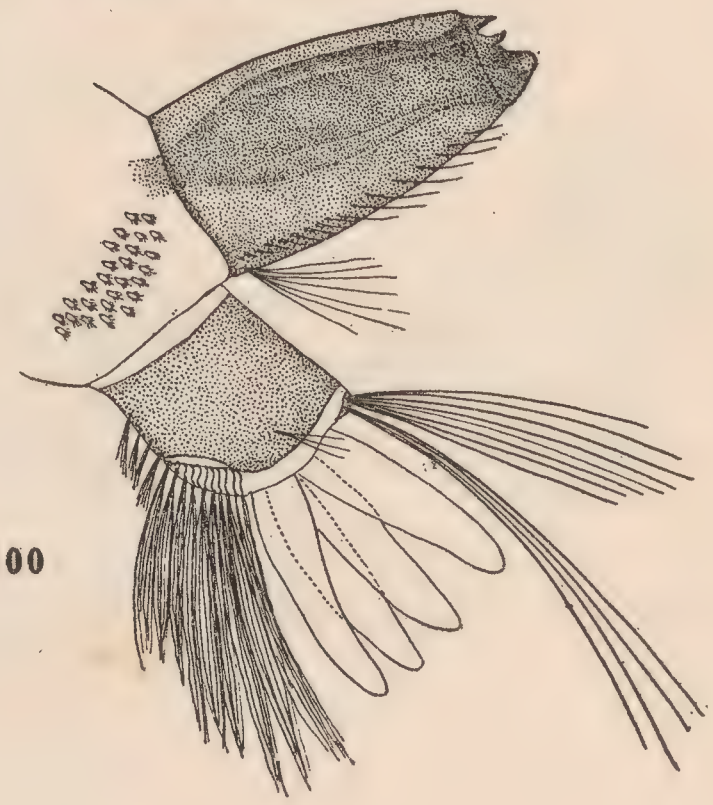

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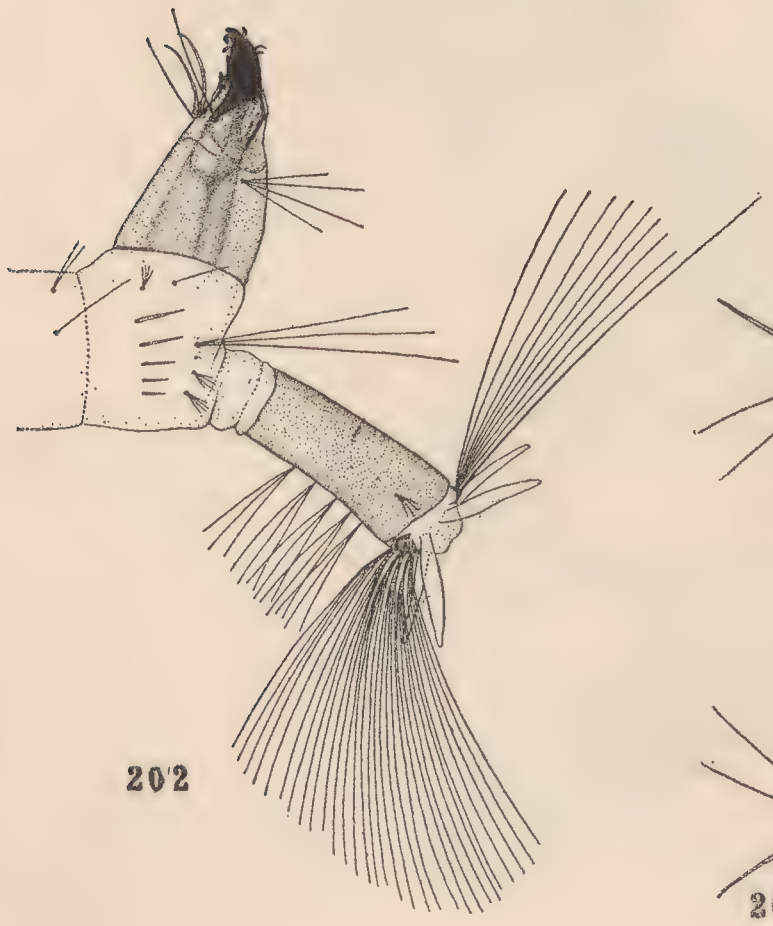

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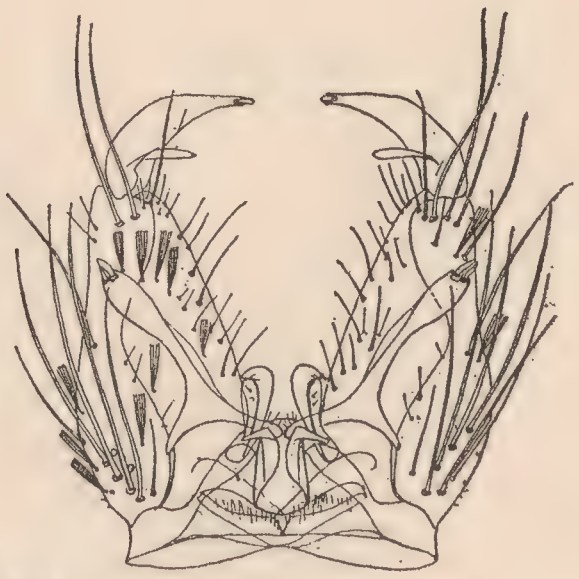
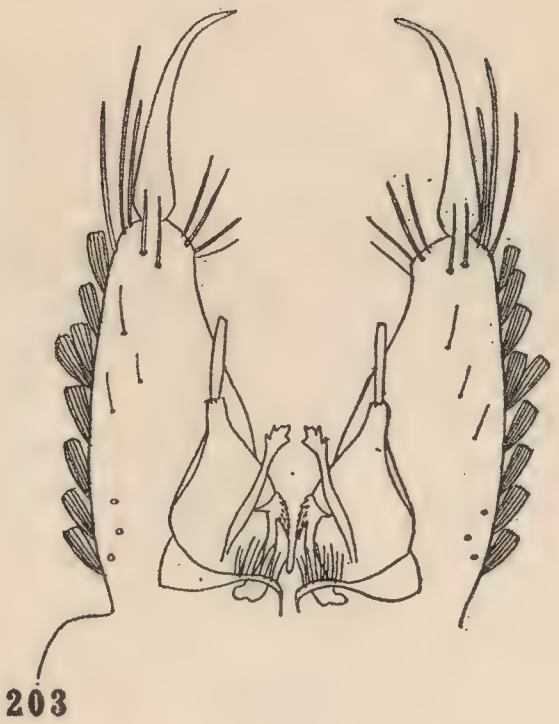


202

199. *Culicella maccrackenæ* D. and K., male hypopygium and larva
200. *Culicella alaskaensis* Ludl., male hypopygium and larva
202. *Mansonia titillans* Walk., male hypopygium and larva

201



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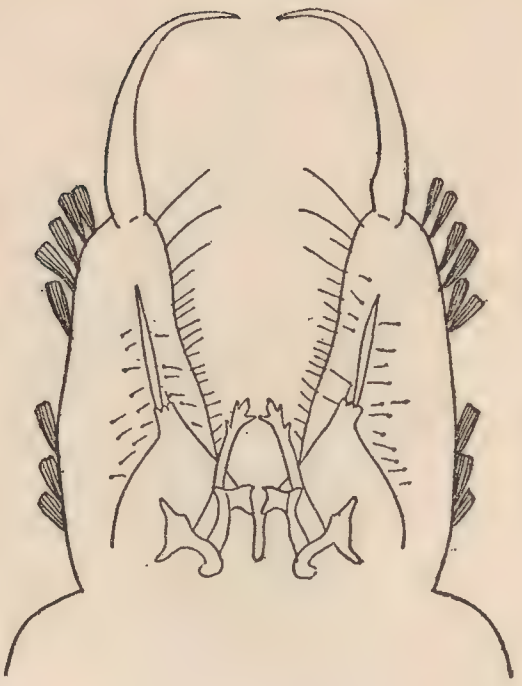

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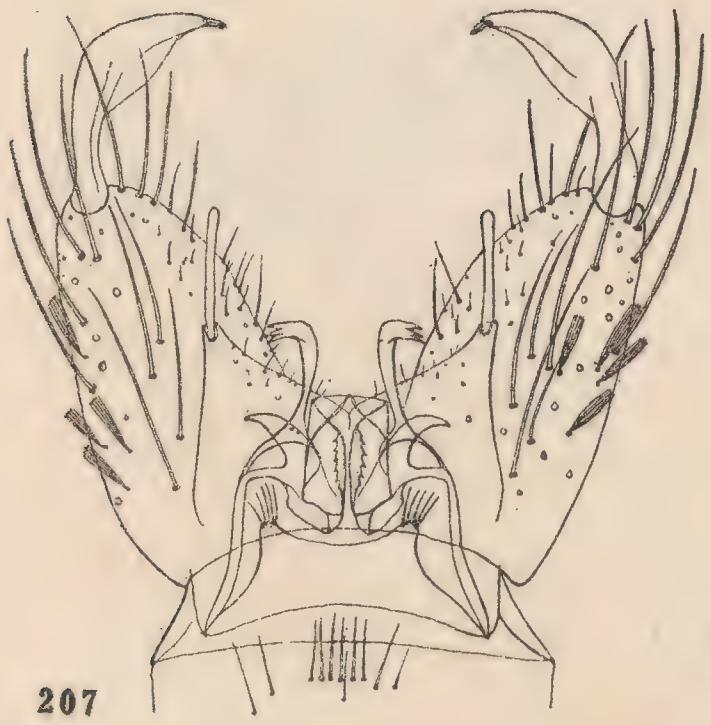

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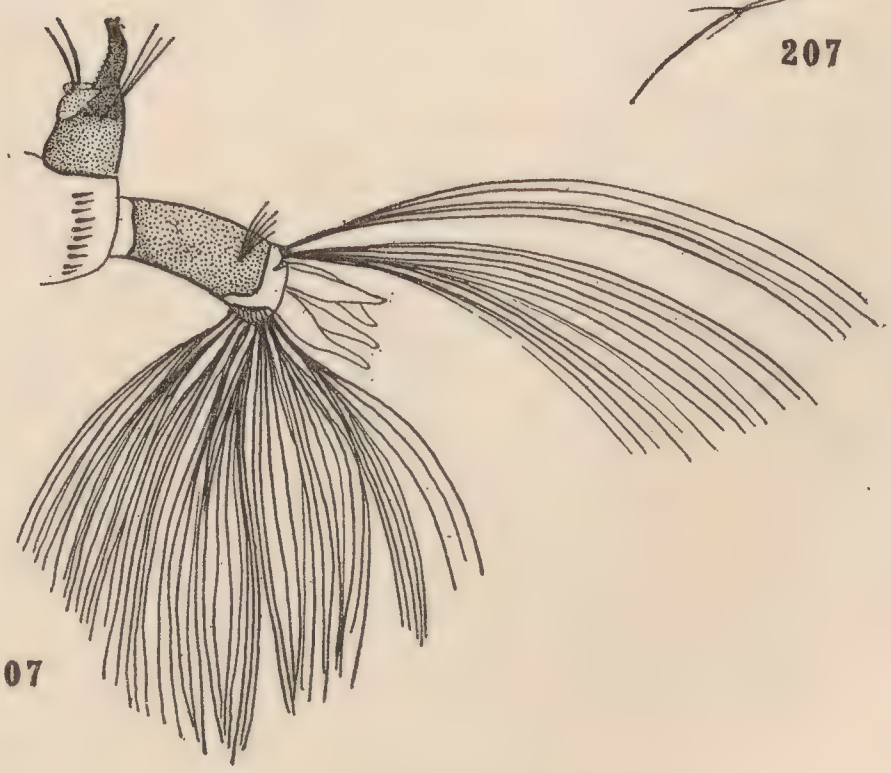
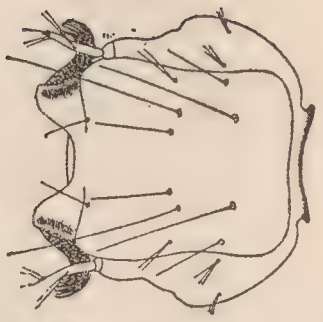


207

201. *Mansonia humeralis* D. and K., male hypopygium
203. *Mansonia justamansonia* Chagas, male hypopygium
204. *Mansonia fasciolata* Lynch A., male hypopygium
205. *Mansonia nigricans* Coq., male hypopygium
206. *Mansonia arribalzagæ* Theob., male hypopygium
207. *Mansonia perturbans* Walk., male hypopygium and larva

208



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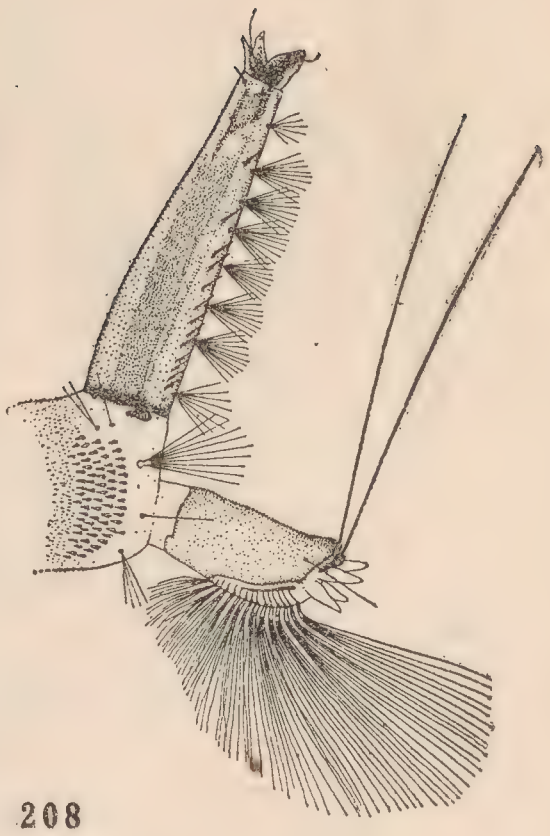

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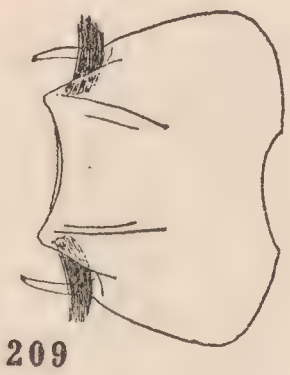

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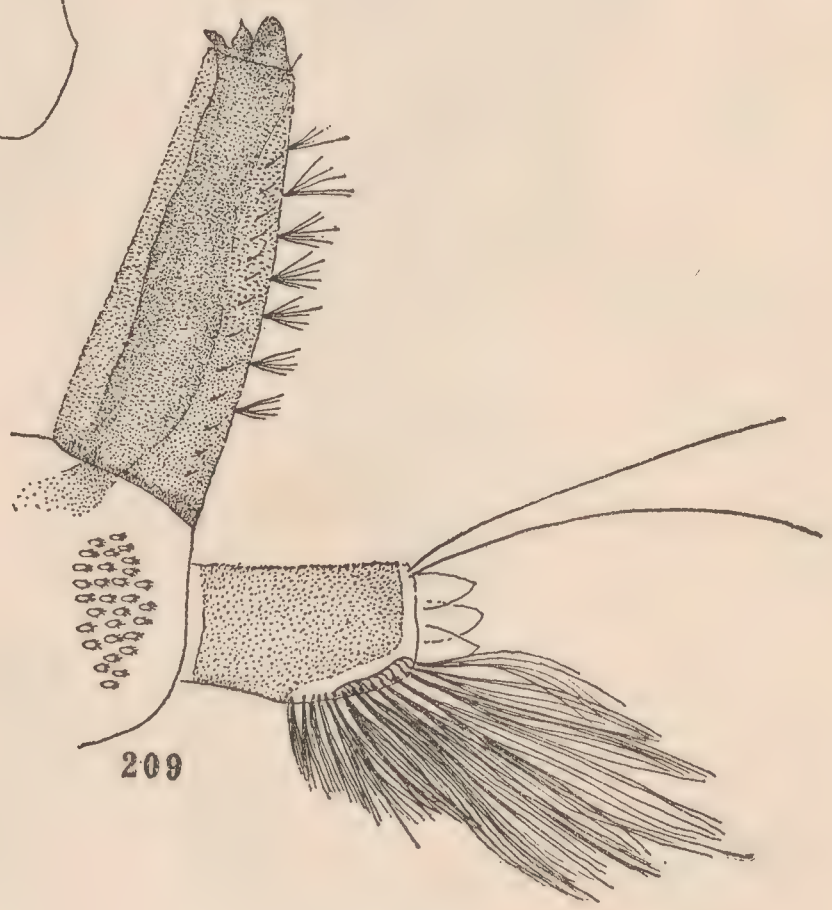
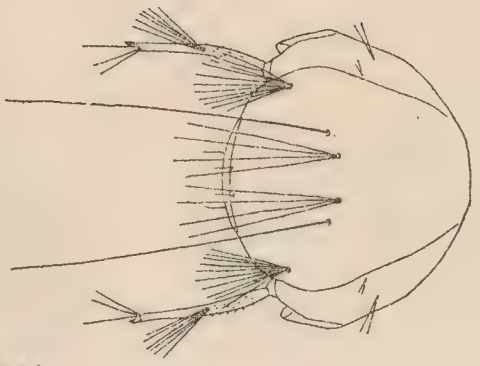


209

210

208. *Lutzia bigoti* Bell., male hypopygium and larva
209. *Lutzia allostigma* H., D. and K., male hypopygium and larva
210. *Lutzia brasiliæ* Dyar, male hypopygium

211



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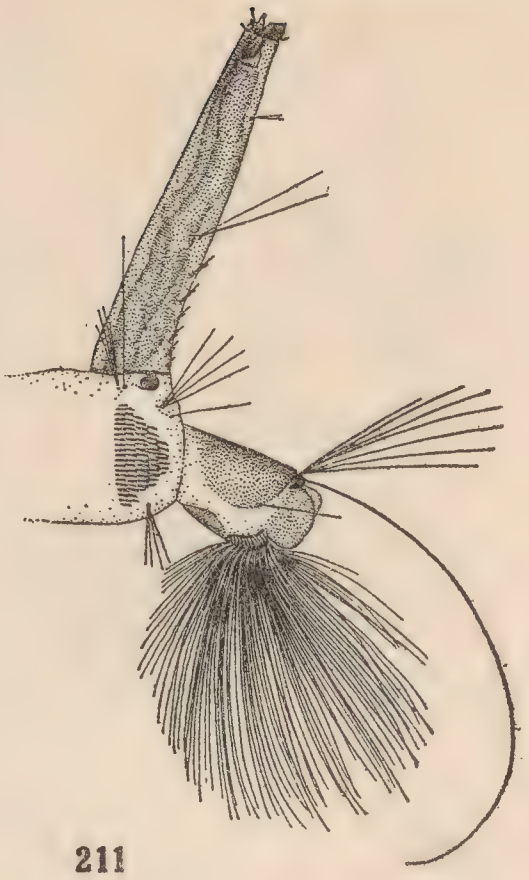

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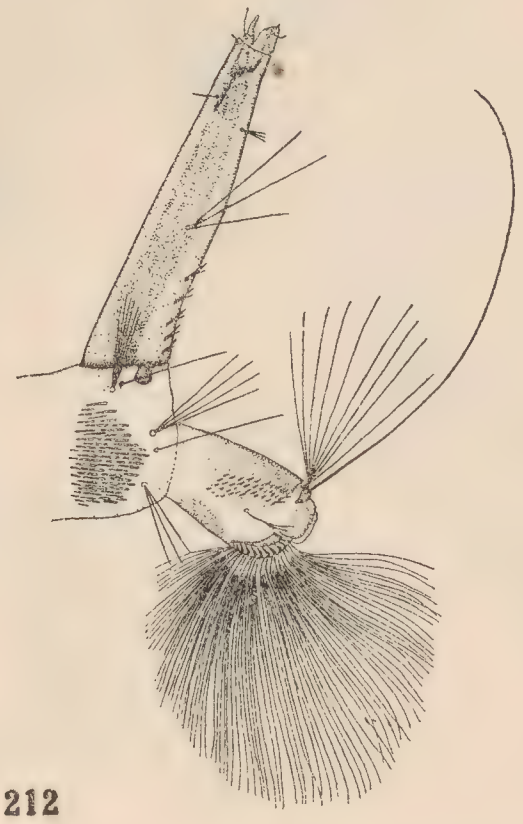

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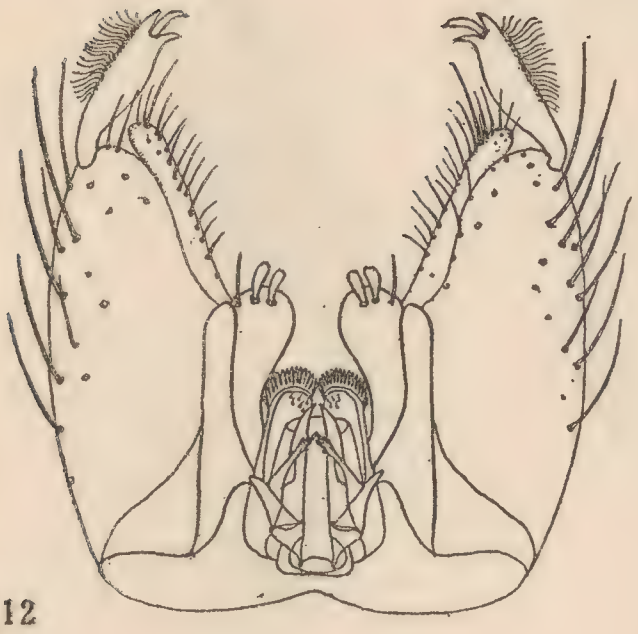

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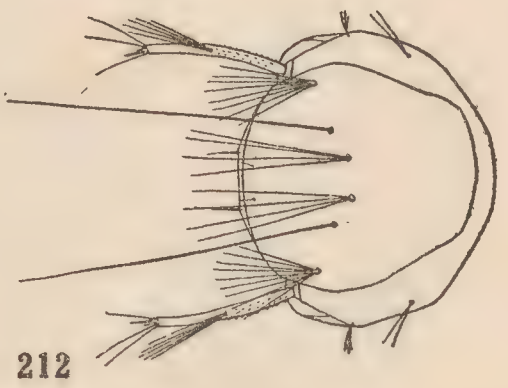

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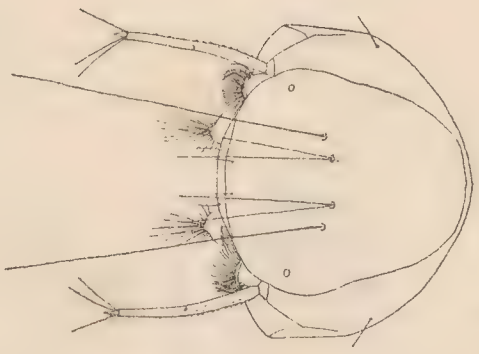

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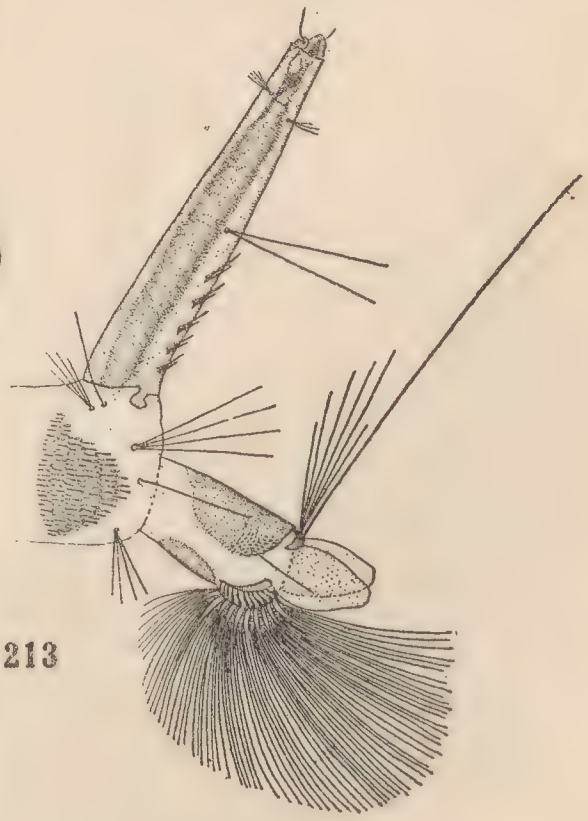

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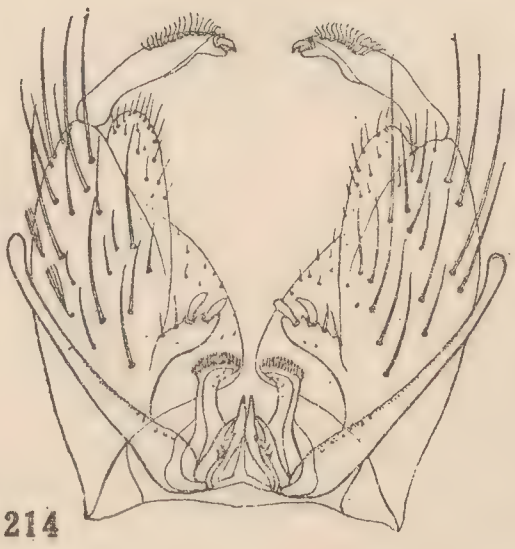
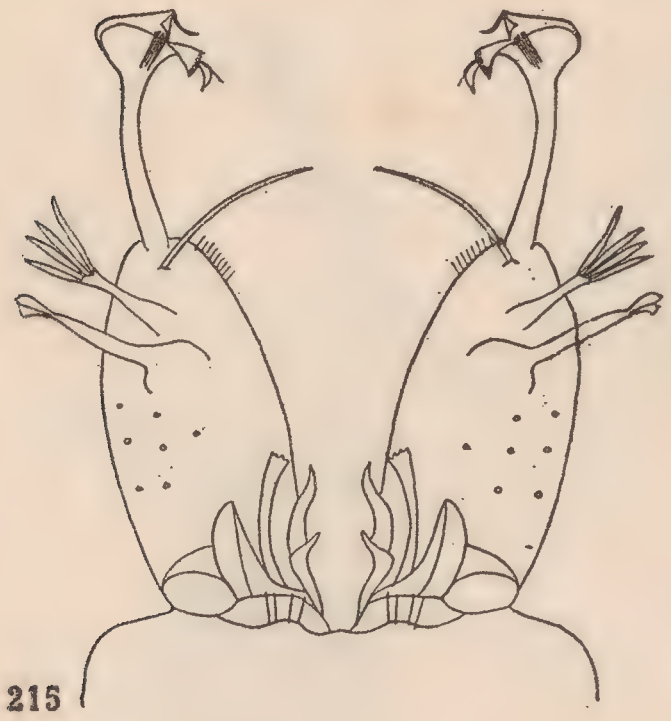


214

211. *Deinocerites cancer* Theob., male hypopygium and larva
212. *Deinocerites pseudes* D. and K., male hypopygium and larva
213. *Deinocerites epitedeus* Knab, male hypopygium and larva
214. *Deinocerites spanius* D. and K., male hypopygium



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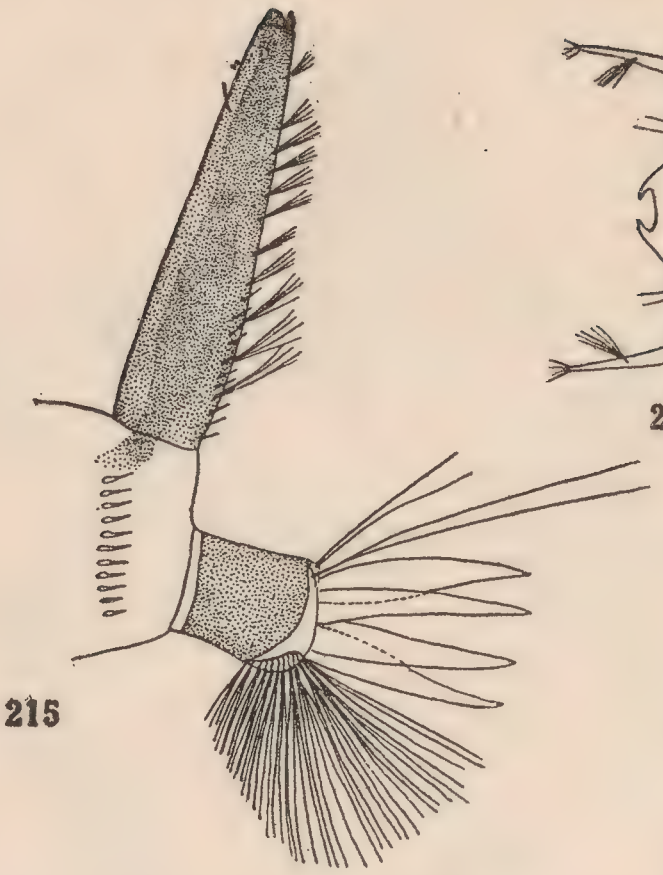

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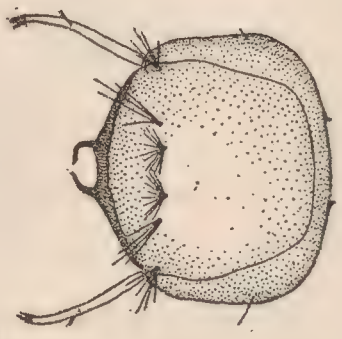

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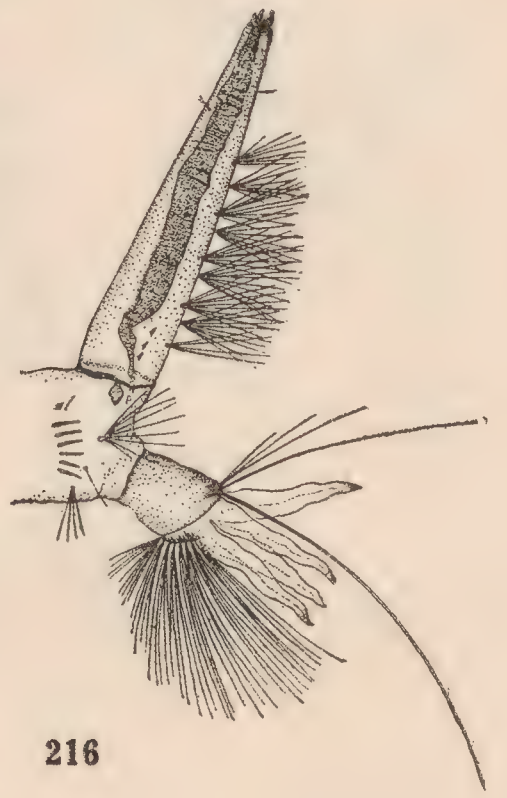

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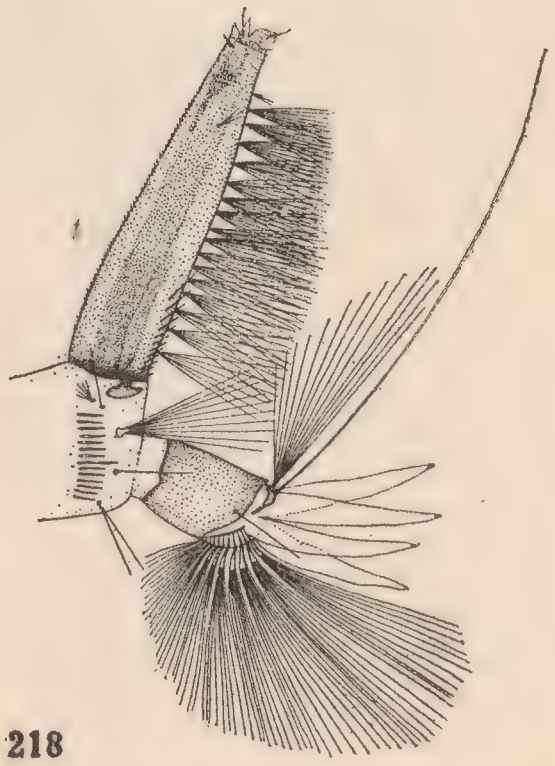
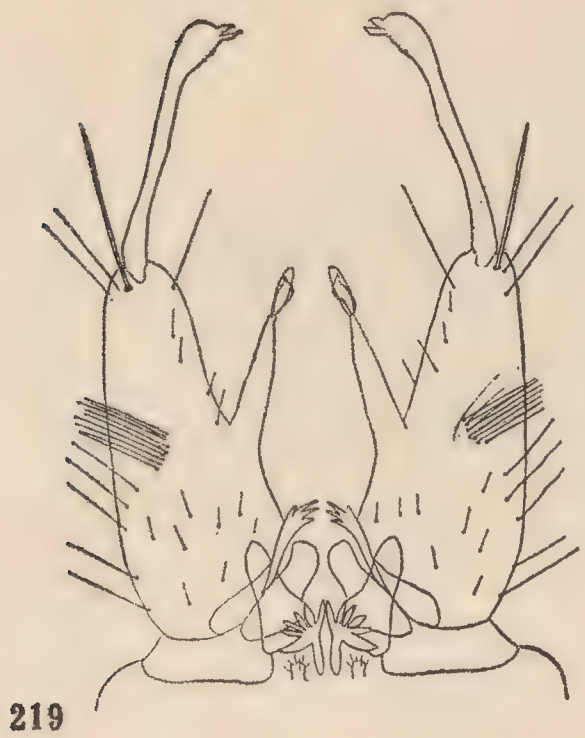


218

215. *Culex iridescens* Lutz, male hypopygium and larva
216. *Culex secundus* B.-W. and B., male hypopygium and larva
217. *Culex metempsytus* Dyar, male hypopygium
218. *Culex urichii* Coq., male hypopygium and larva



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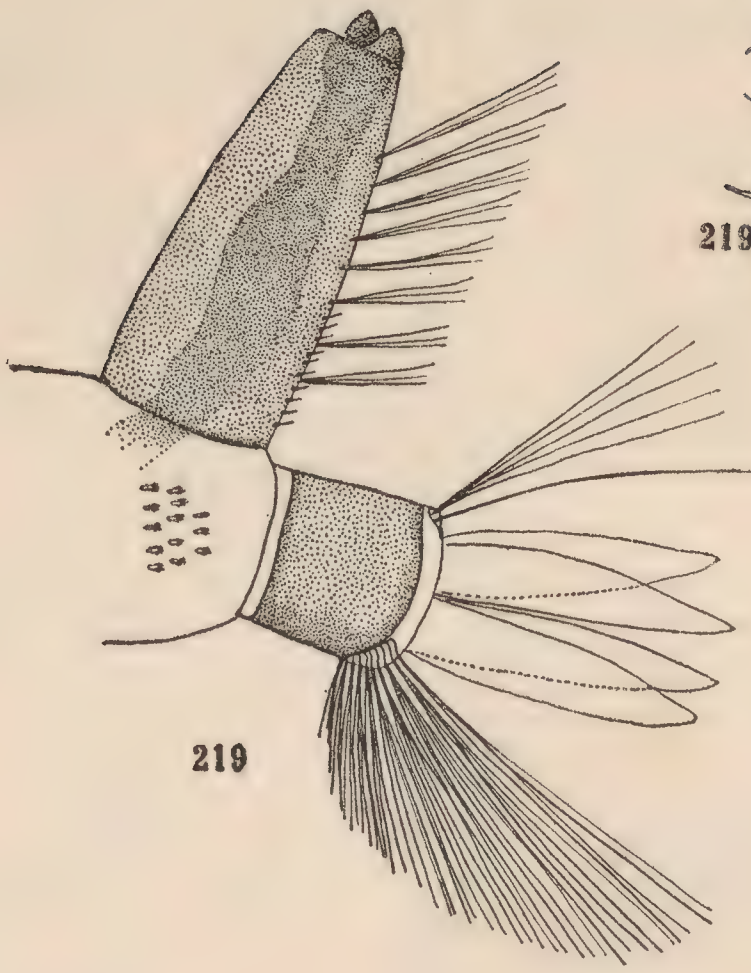

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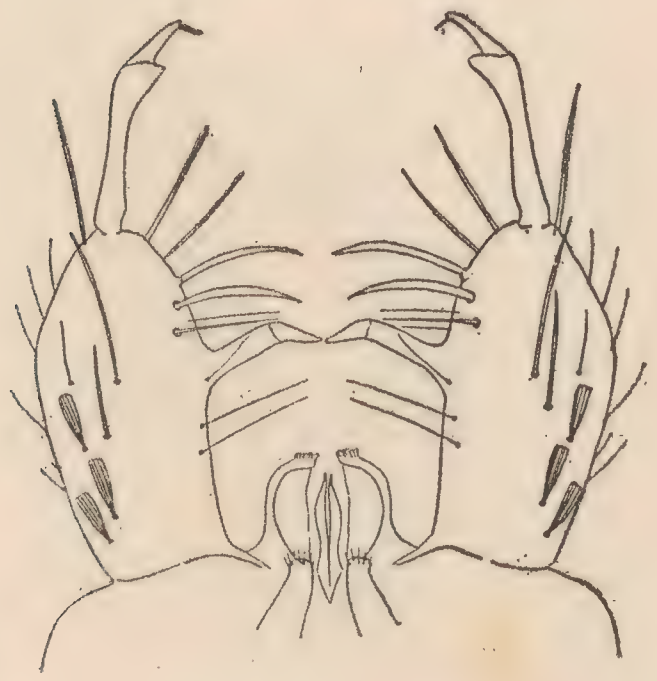


221

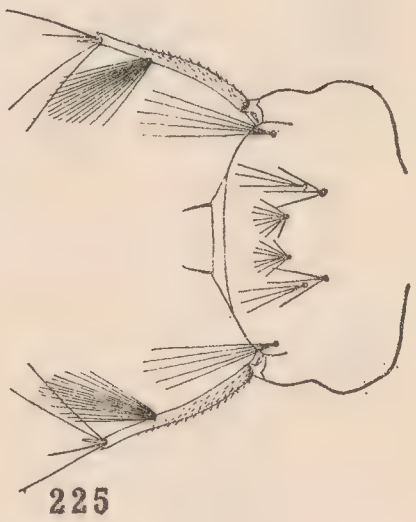
222

219. *Culex infoliatus* B.-W. and B., male hypopygium and larva
220. *Culex bihaicolus* D. and N. T., male hypopygium
221. *Culex amazonensis* Lutz, male hypopygium
222. *Culex accelerans* Root, male hypopygium

223

224

225



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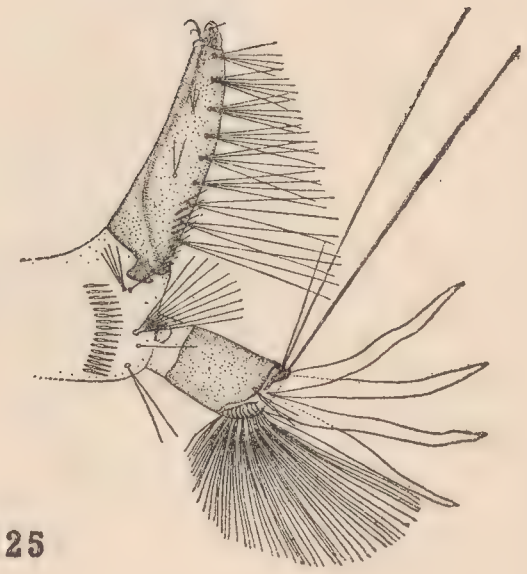

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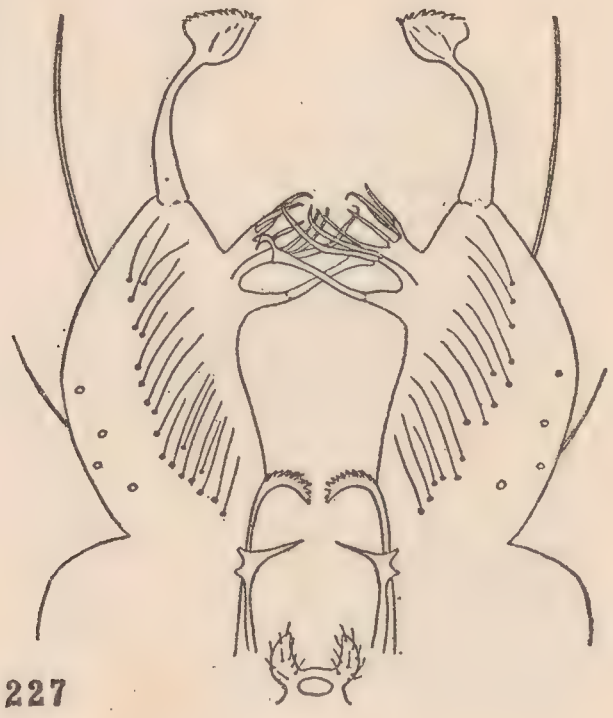
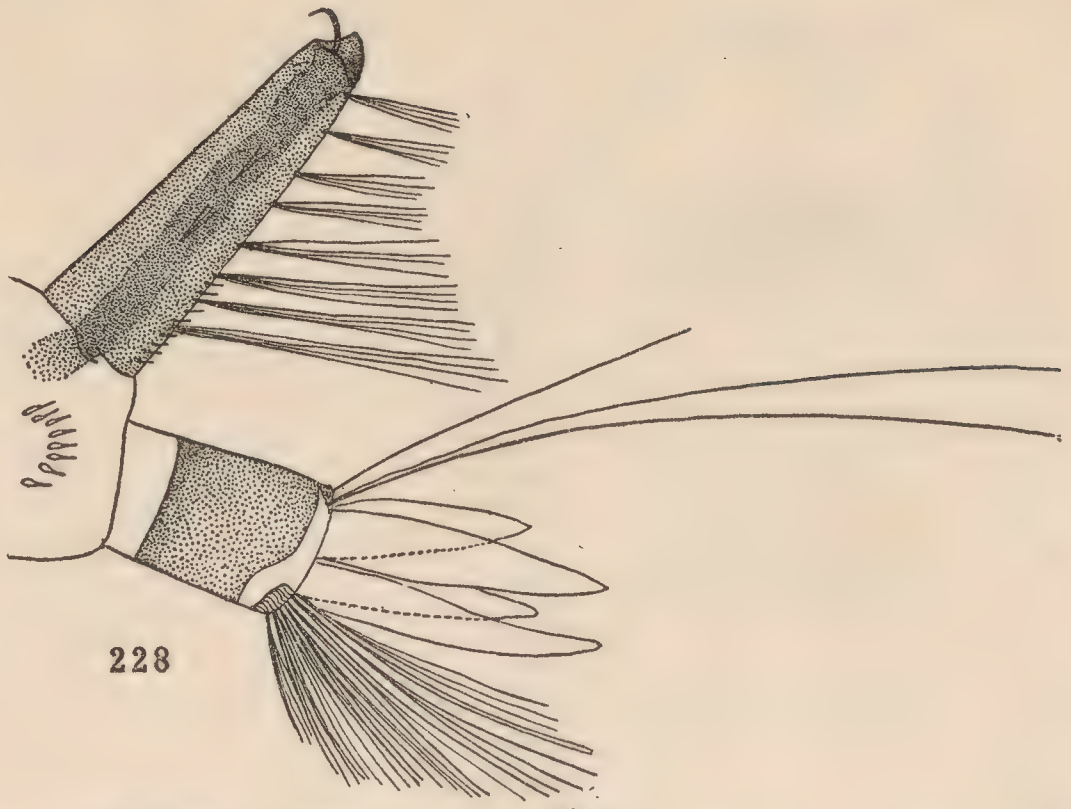
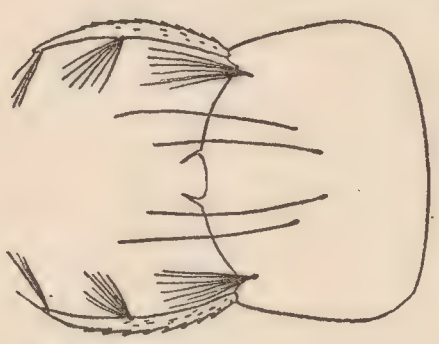
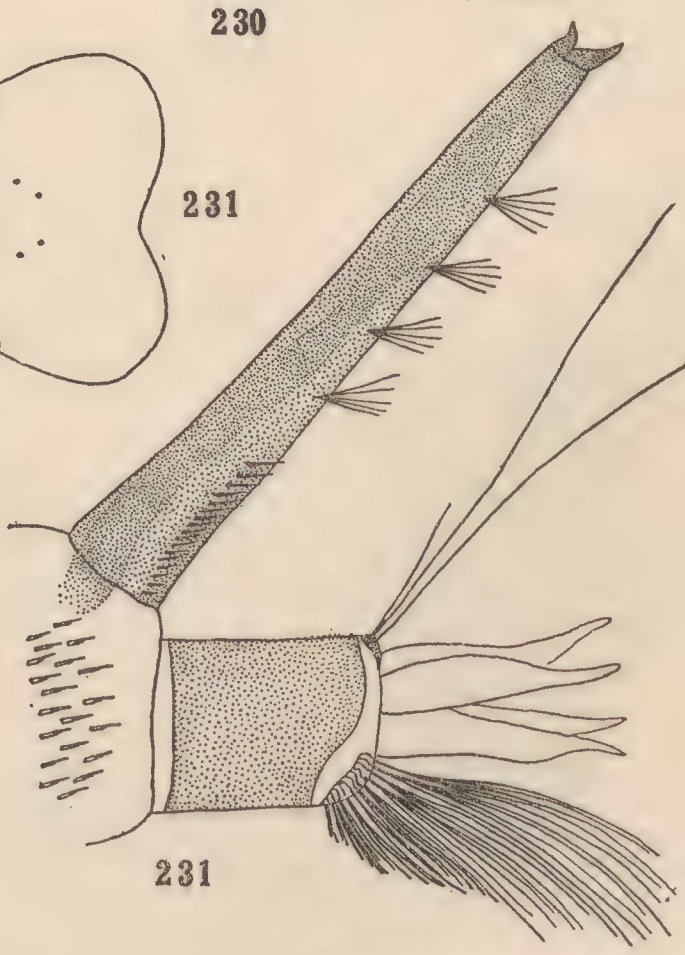


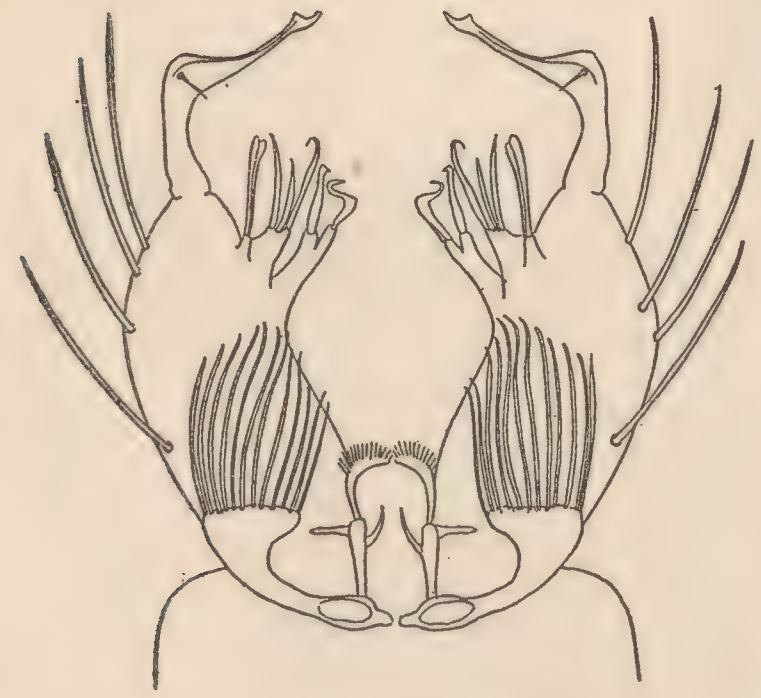
227

223. *Culex trifidus* Dyar, male hypopygium
224. *Culex menytes* Dyar, male hypopygium
225. *Culex caudelli* D. and K., male hypopygium and larva
226. *Culex alogistus* Dyar, male hypopygium
227. *Culex hesitator* D. and K., male hypopygium



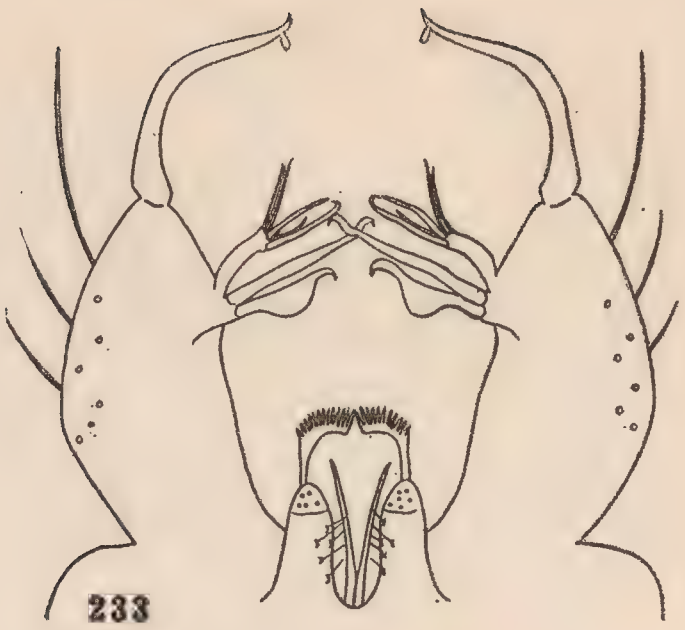






228. *Culex pilosus* D. and K., male hypopygium and larva
229. *Culex alogistus* Dyar (*megapus* Root), male hypopygium
230. *Culex innovator* Evans, male hypopygium
231. *Culex egcymon* Dyar, male hypopygium and larva

232



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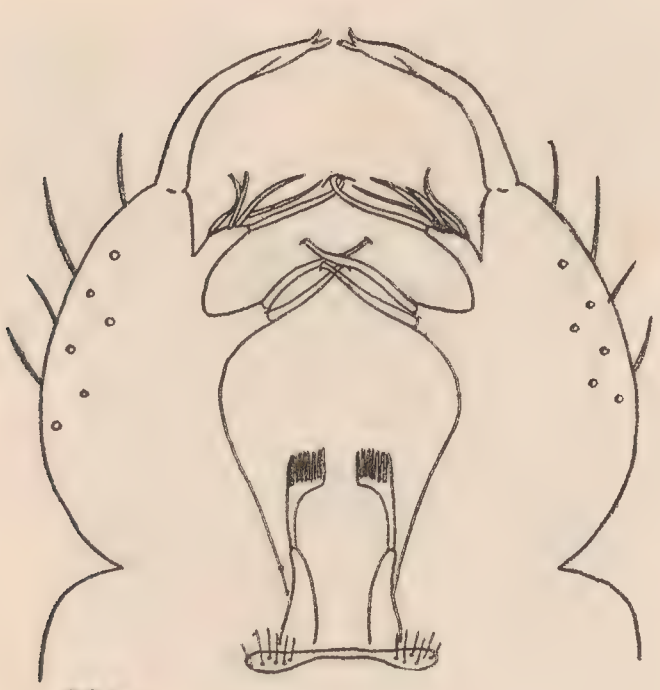

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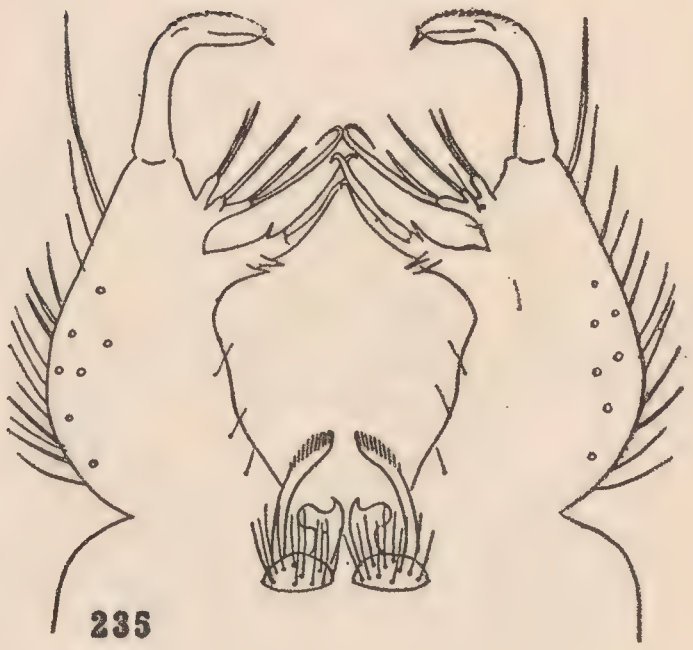
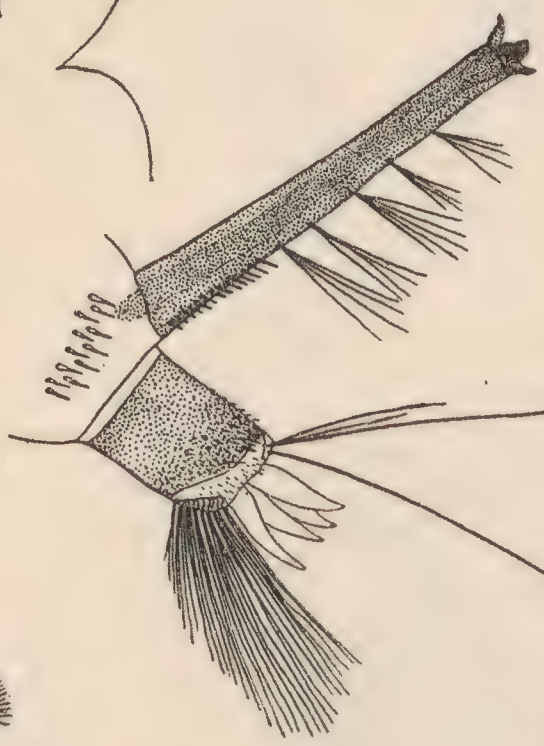


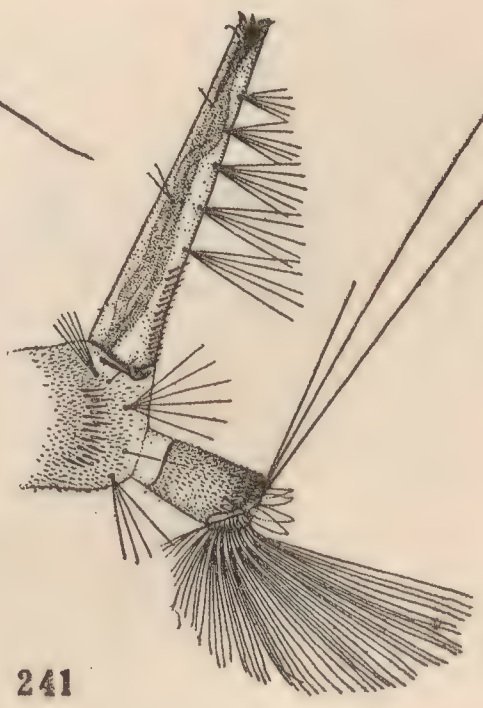
235

236

237

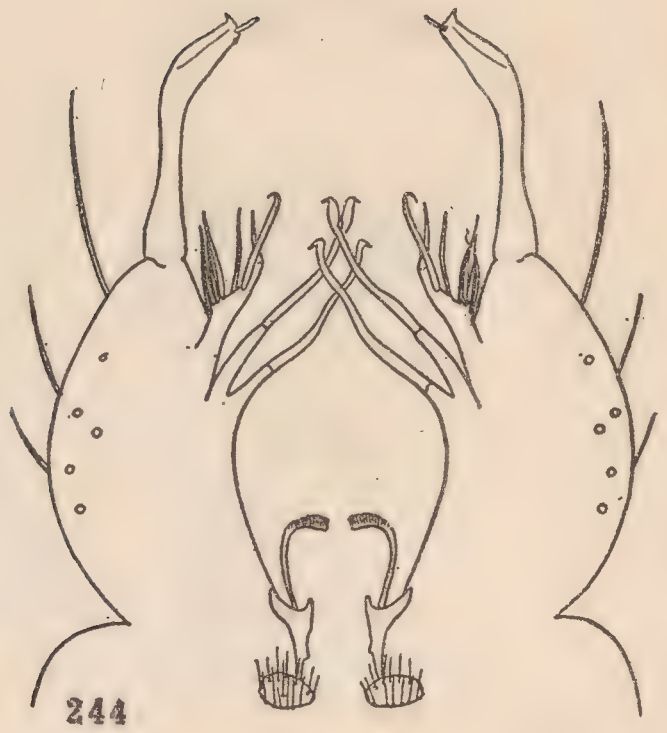
232. *Culex tæniopus* D. and K., male hypopygium
233. *Culex opisthopus* Komp, male hypopygium
234. *Culex automartus* Root, male hypopygium
235. *Culex psatharus* Dyar, male hypopygium
236. *Culex epanastasis* Dyar, male hypopygium
237. *Culex inadmirabilis* Dyar, male hypopygium





238. *Culex clarki* Evans, male hypopygium
239. *Culex bequaerti* D. and S., male hypopygium
240. *Culex anips* Dyar, male hypopygium
241. *Culex erraticus* D. and K., male hypopygium and larva
242. *Culex peccator* D. and K., male hypopygium

243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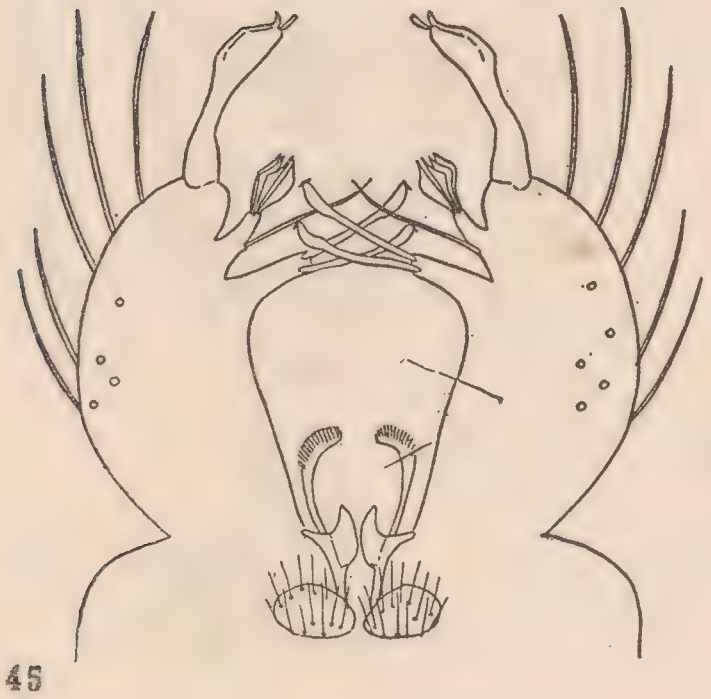
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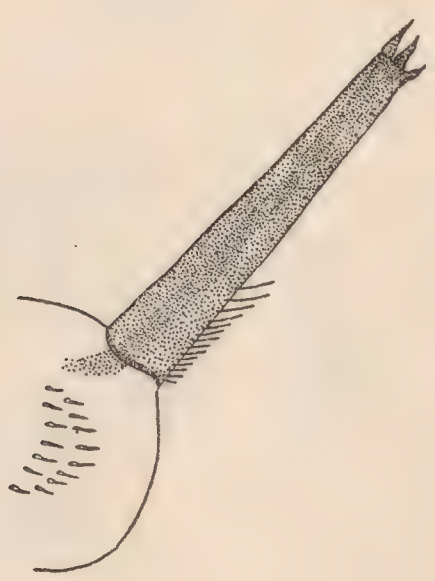
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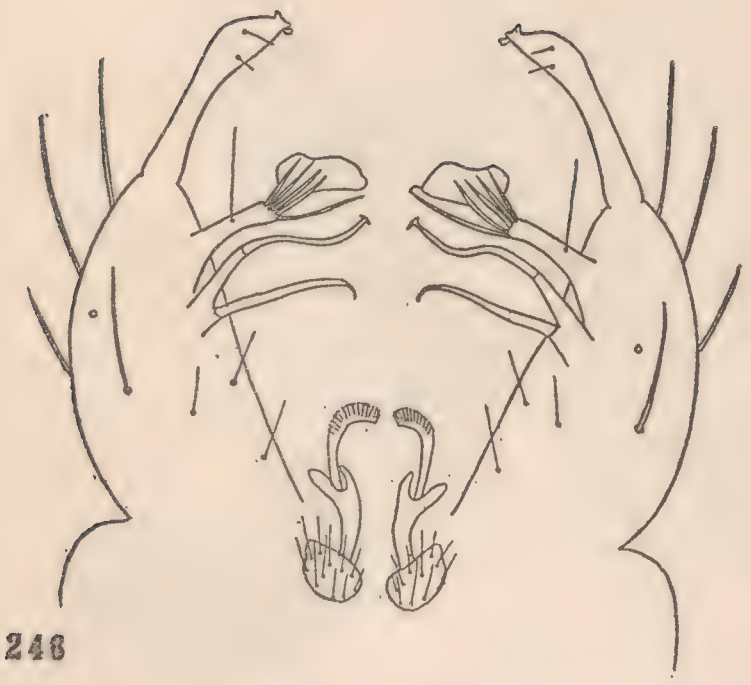
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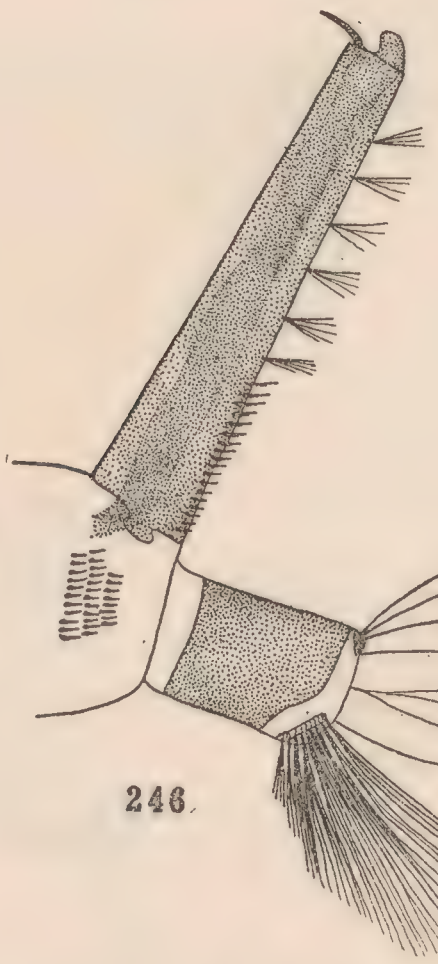
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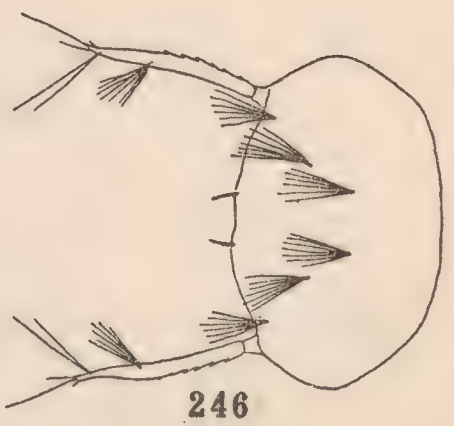
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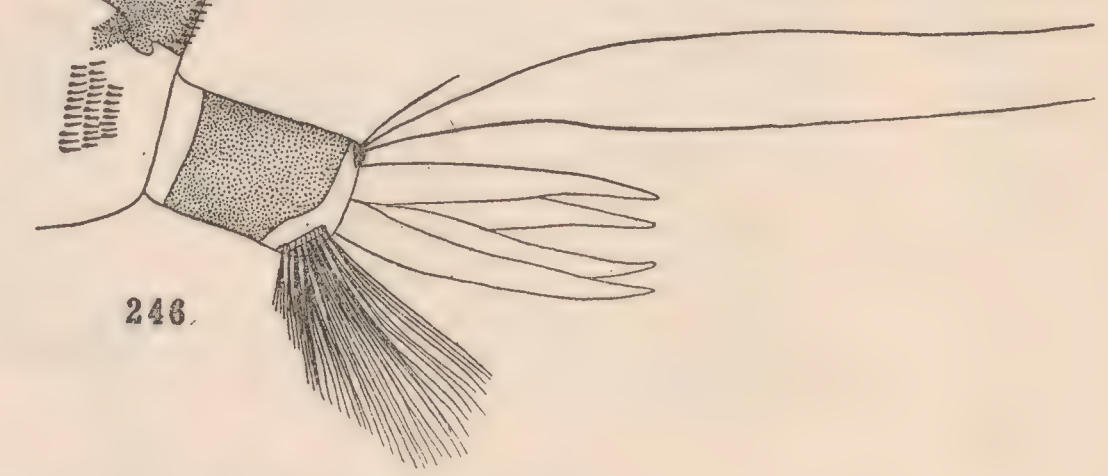
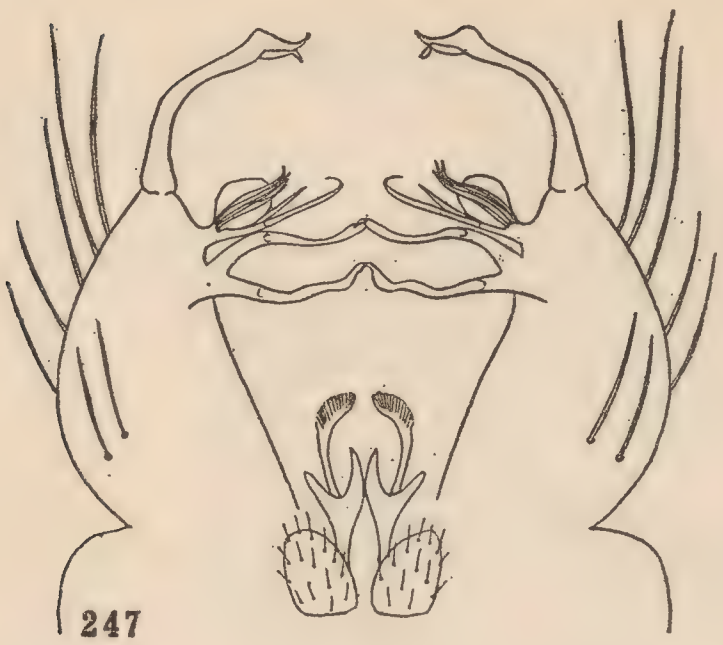

246

243. *Culex holoneus* Dyar, male hypopygium
244. *Culex terebor* Dyar, male hypopygium
245. *Culex ybarmis* Dyar, male hypopygium and larva
246. *Culex alcocci* B.-W. and B., male hypopygium and larva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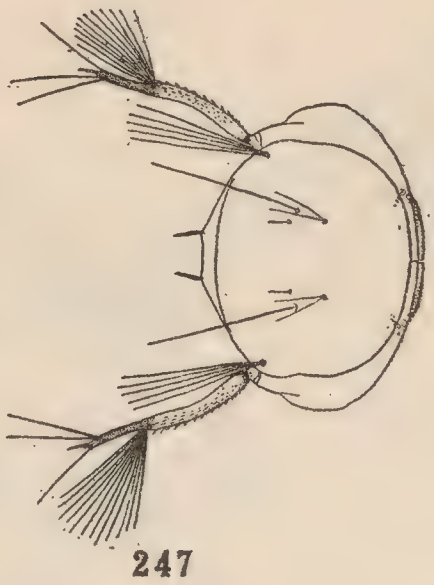
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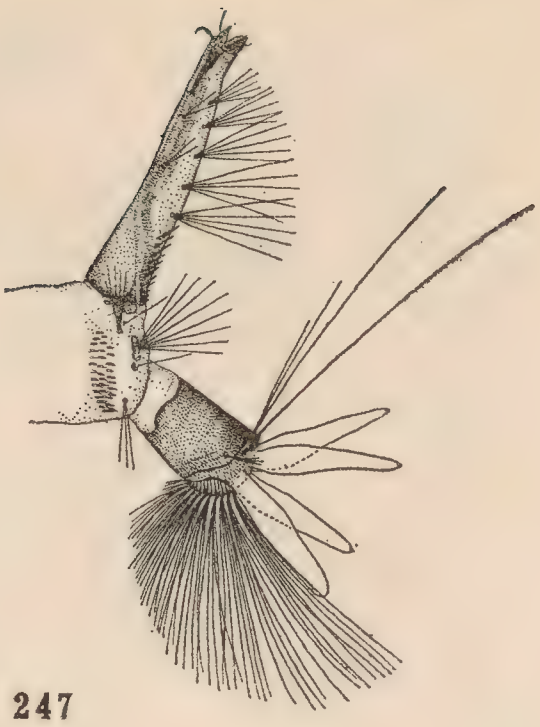
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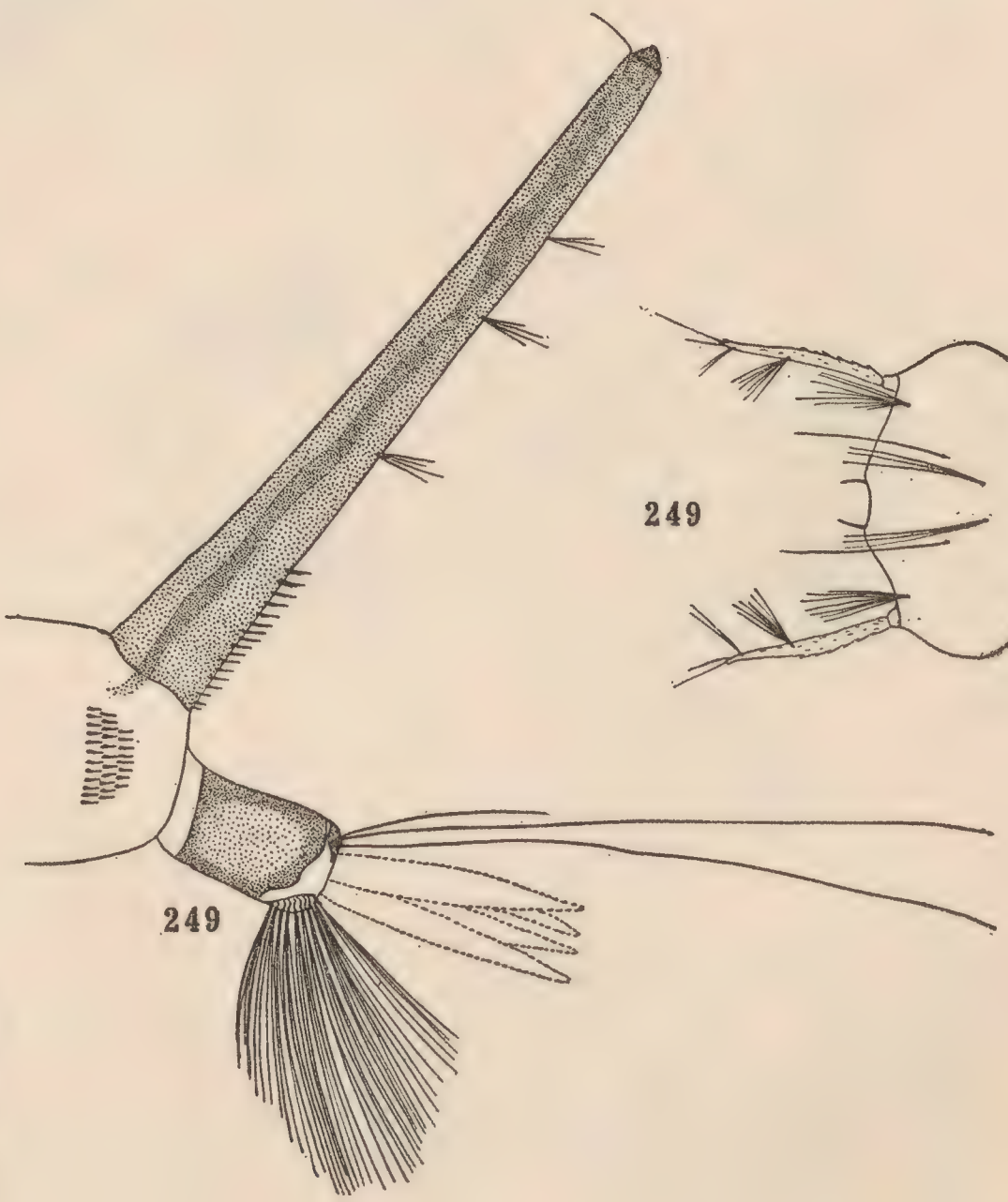
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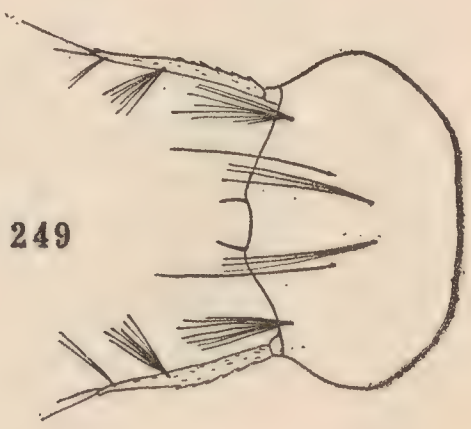
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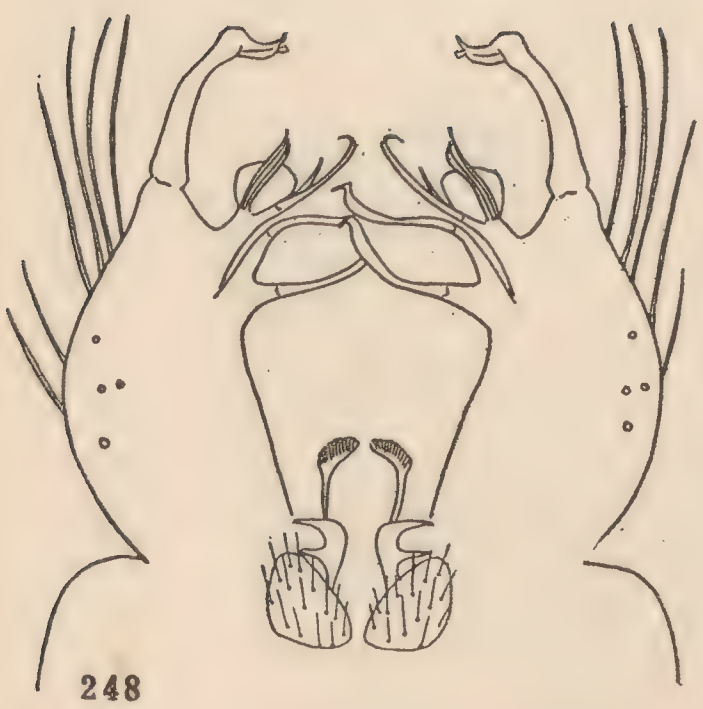
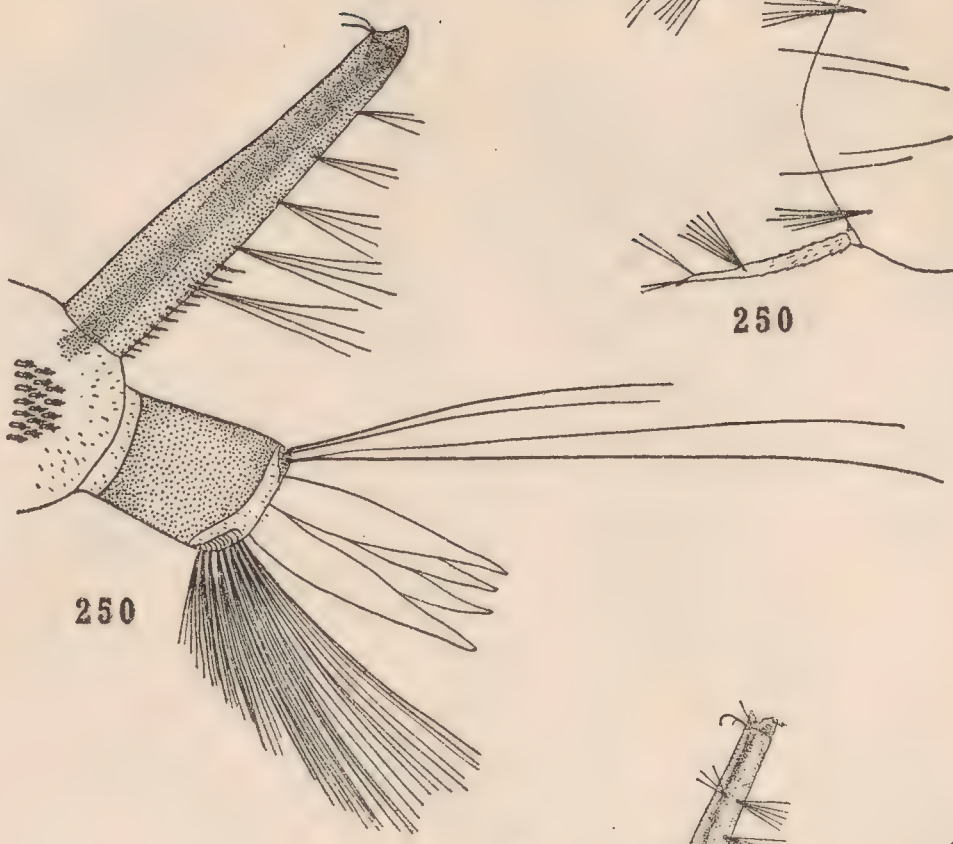

248

247. *Culex conspirator* D. and K., male hypopygium and larva
248. *Culex fatuator* D. and S., male hypopygium
249. *Culex nicceriensis* B.-W. and B., male hypopygium and larva

250



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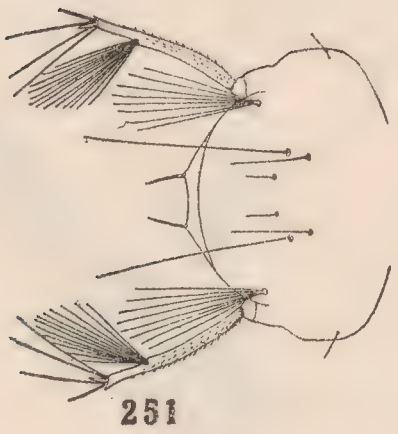

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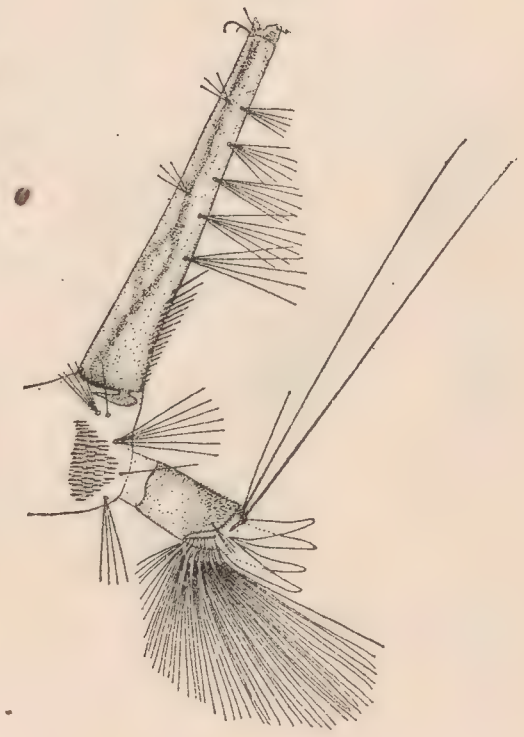

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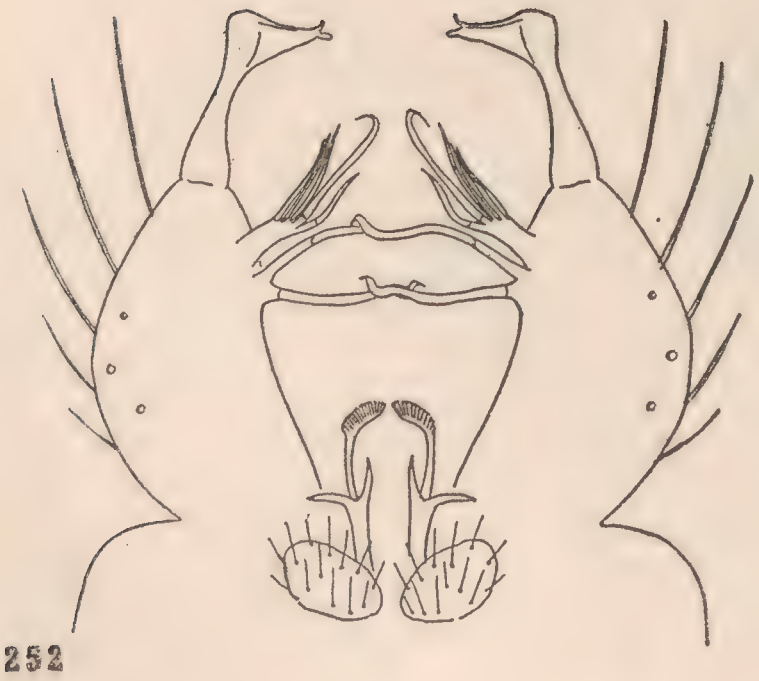

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253

250. *Culex sarramaccensis* B.-W. and B., male hypopygium and larva
251. *Culex elevator* D. and K., male hypopygium and larva
252. *Culex dornarum* D. and S., male hypopygium
253. *Culex macaronensis* D. and N. T., male hypopygium

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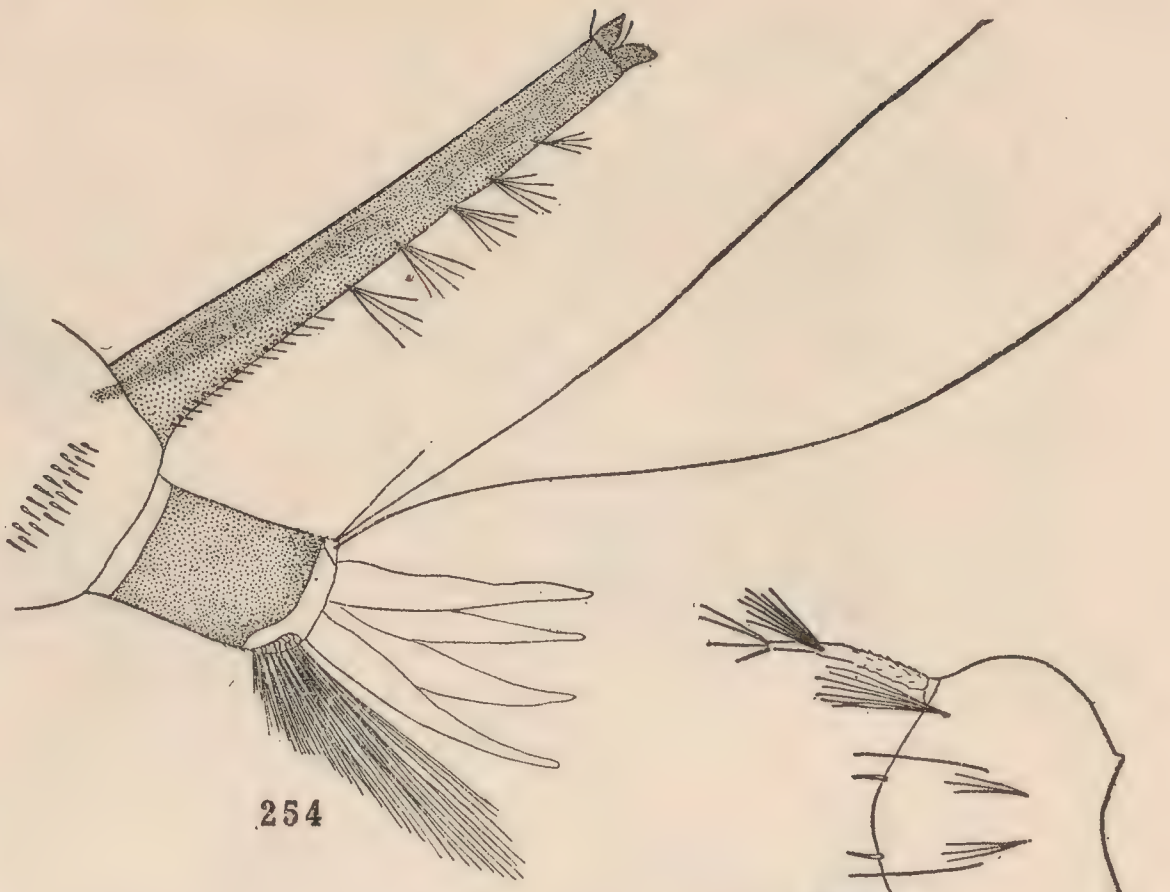

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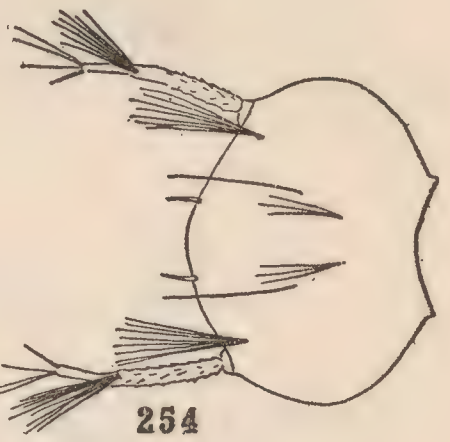

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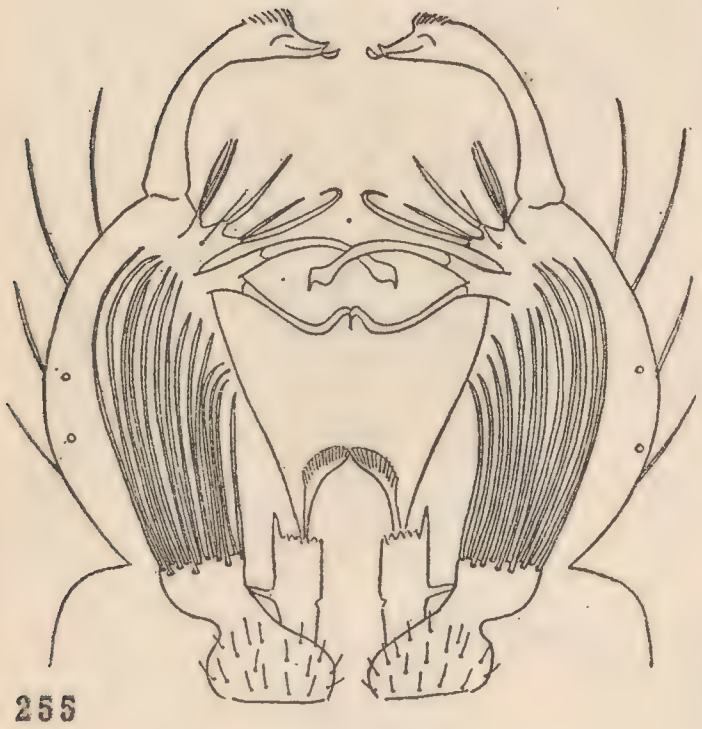

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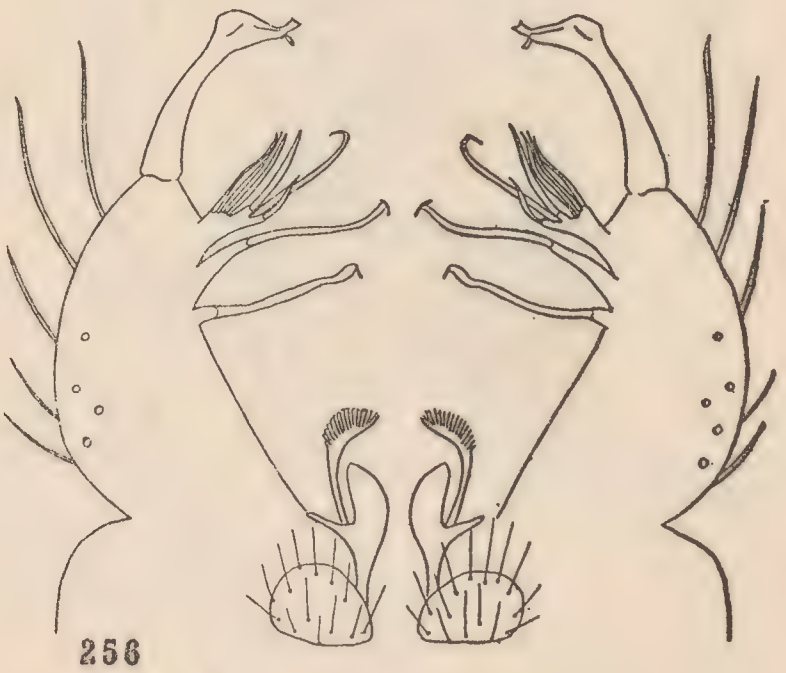

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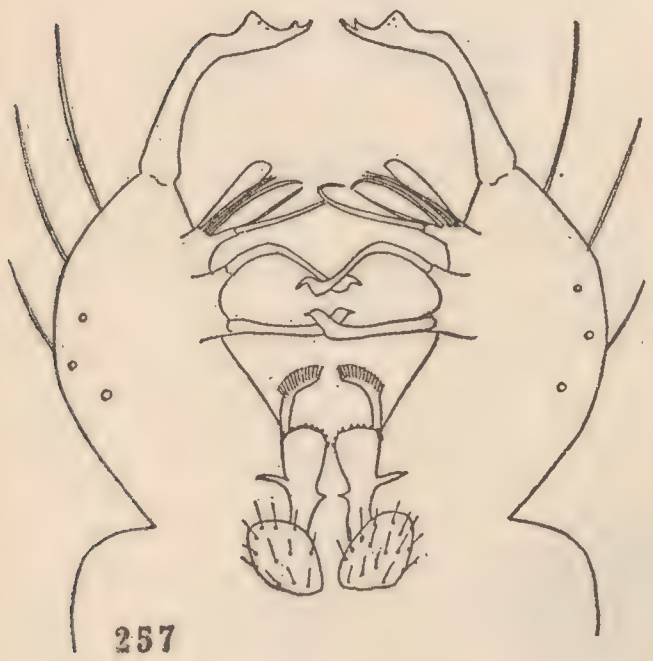

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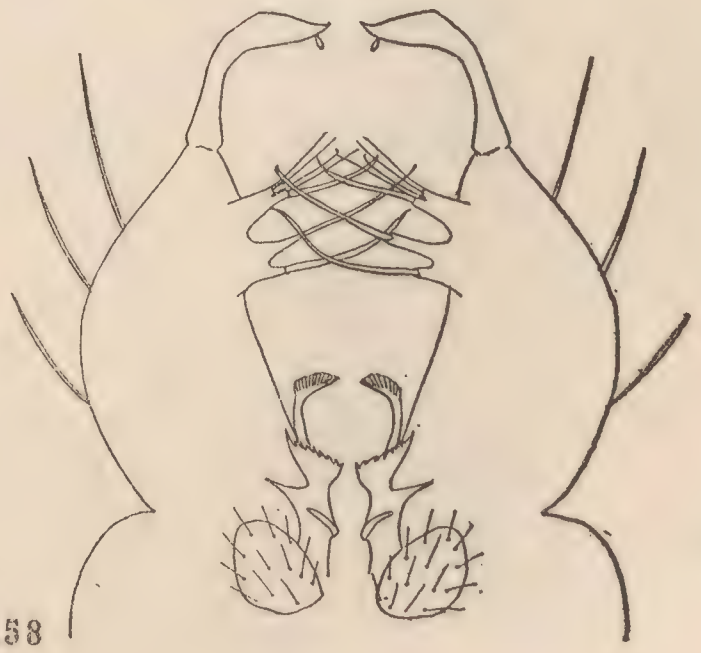
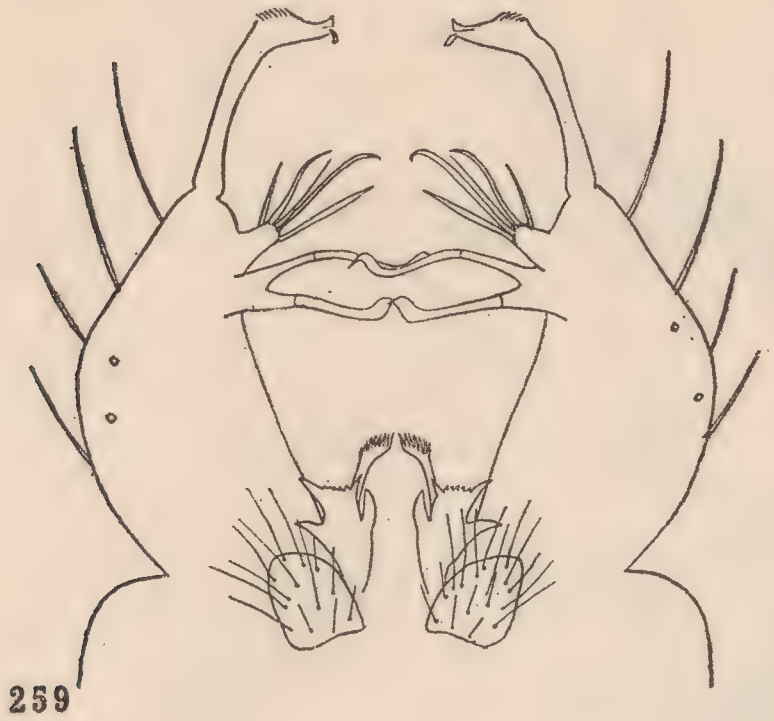
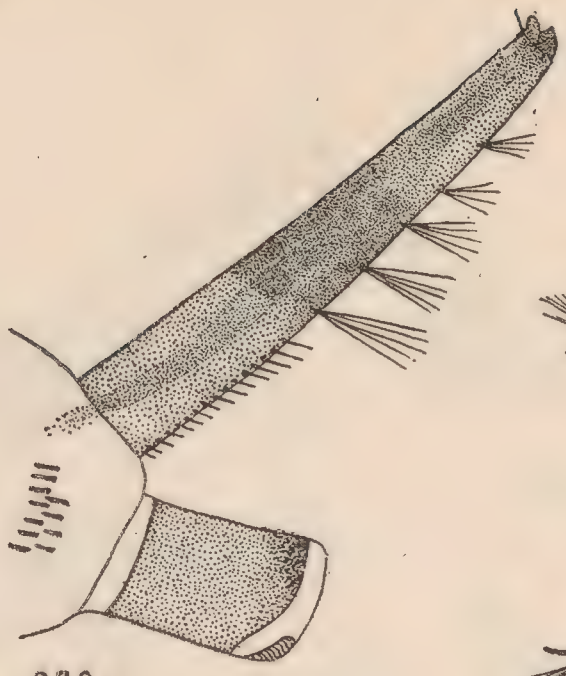
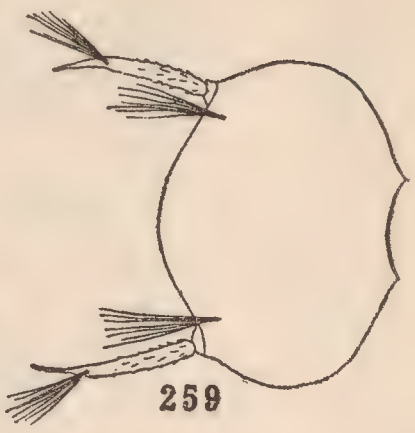


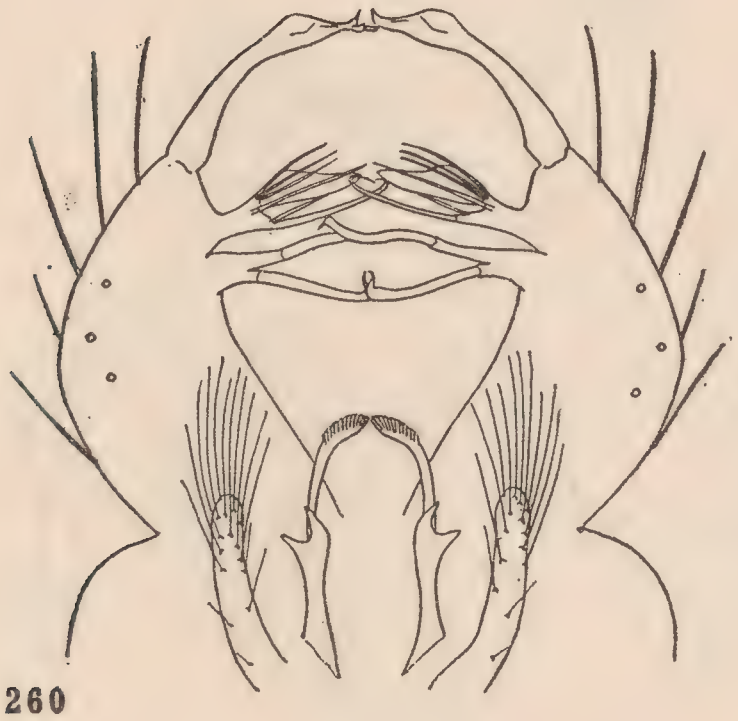
258

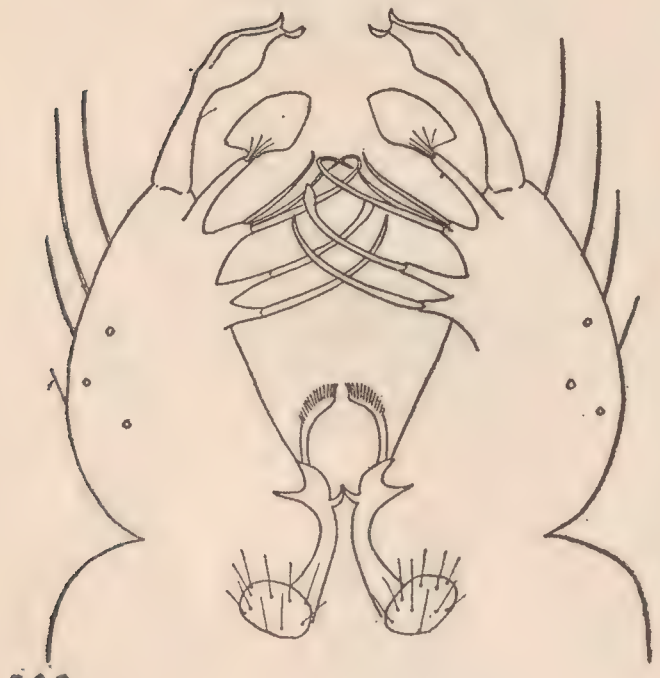
254. *Culex phlogistus* Dyar, male hypopygium and larva
255. *Culex serratimargo* Root, male hypopygium
256. *Culex elevator* D. and K. (*dyius* Root), male hypopygium
257. *Culex plectoporpe* Root, male hypopygium
258. *Culex maroniensis* B.-W. and B., male hypopygium

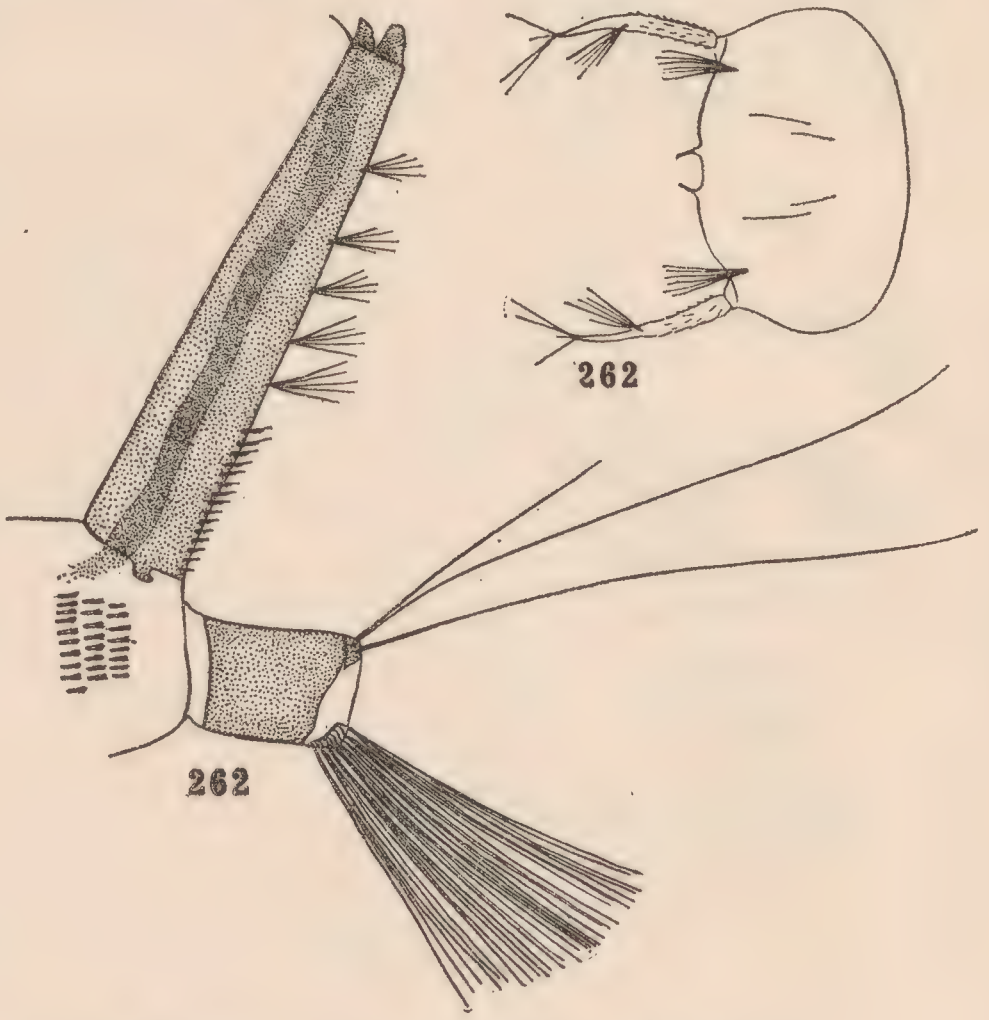






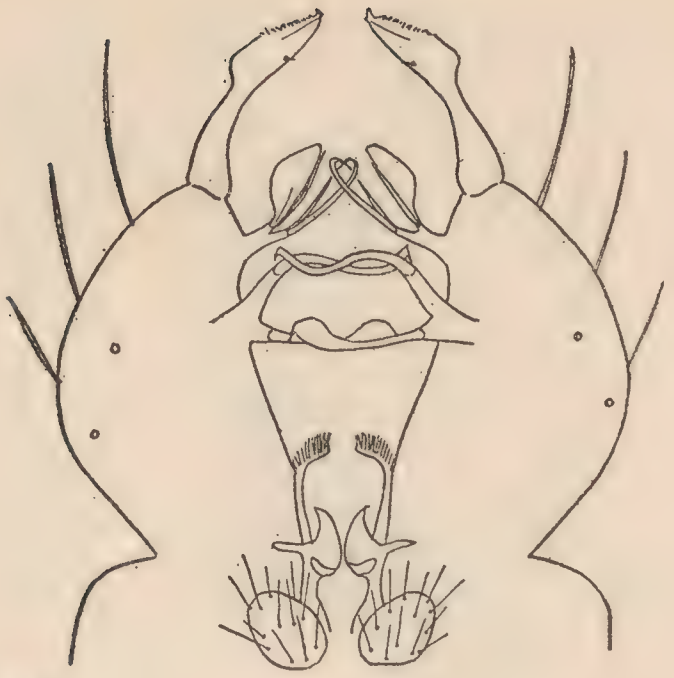






259. *Culex albinensis* B.-W. and B., male hypopygium and larva
260. *Culex tecmarsis* Dyar, male hypopygium
261. *Culex phlabistus* Dyar, male hypopygium
262. *Culex coppenamensis* B.-W. and B., male hypopygium and larva

263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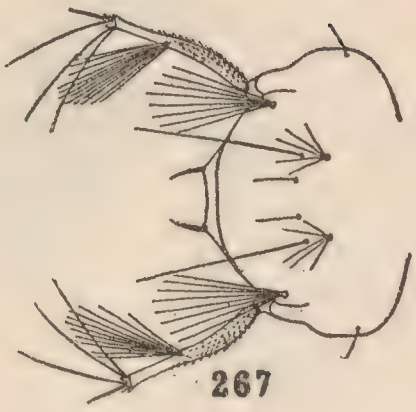
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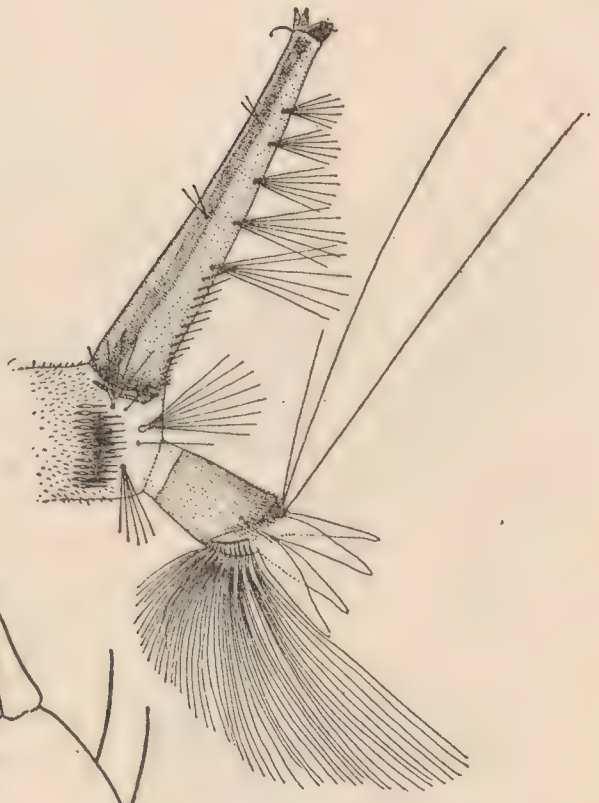
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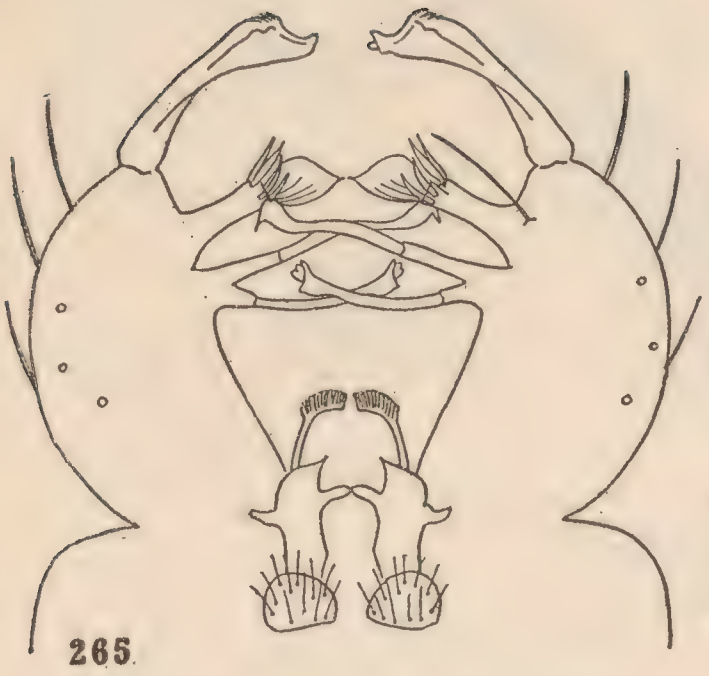
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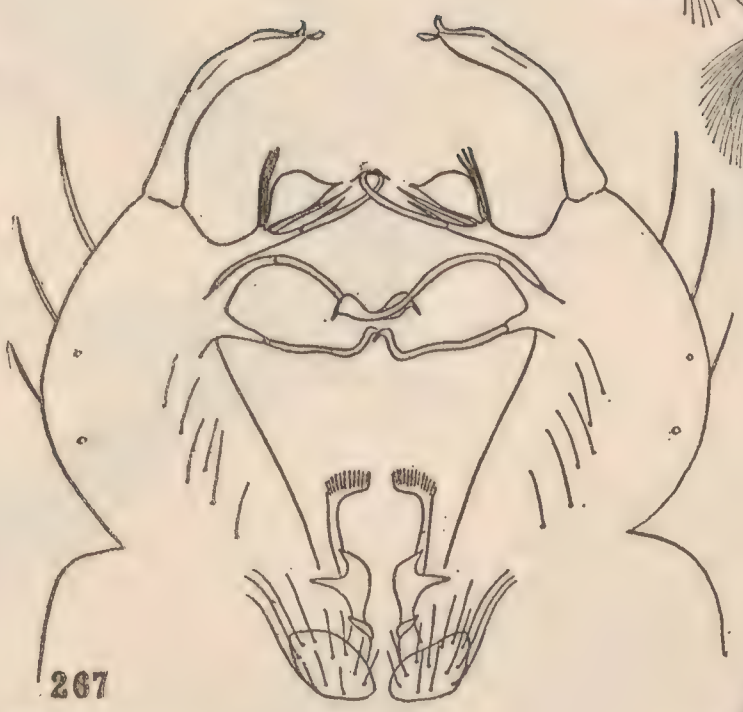
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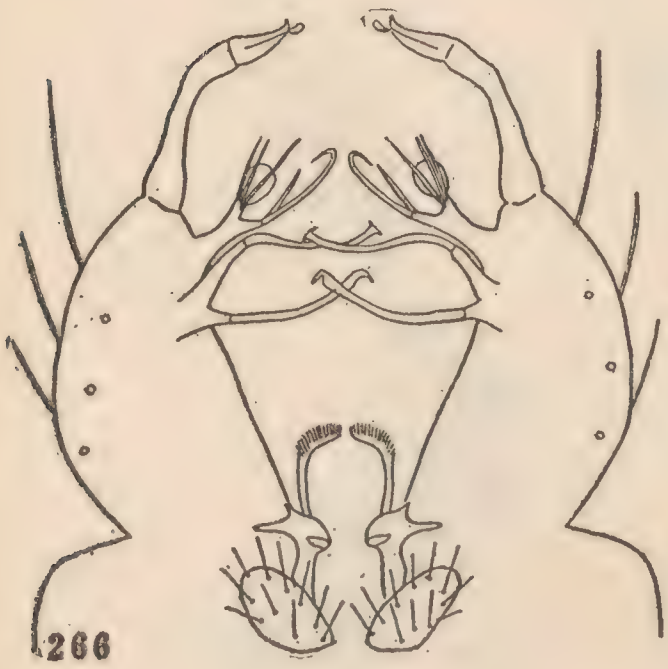
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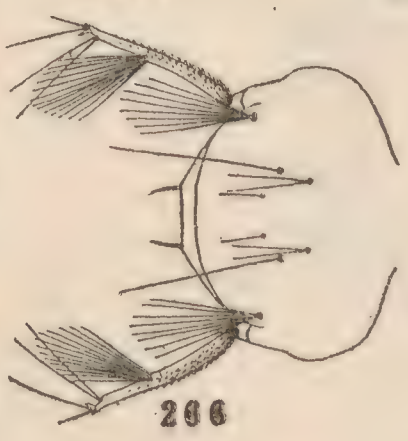
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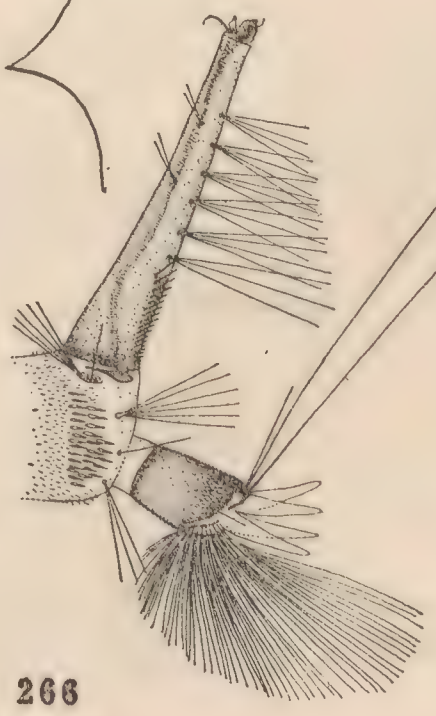
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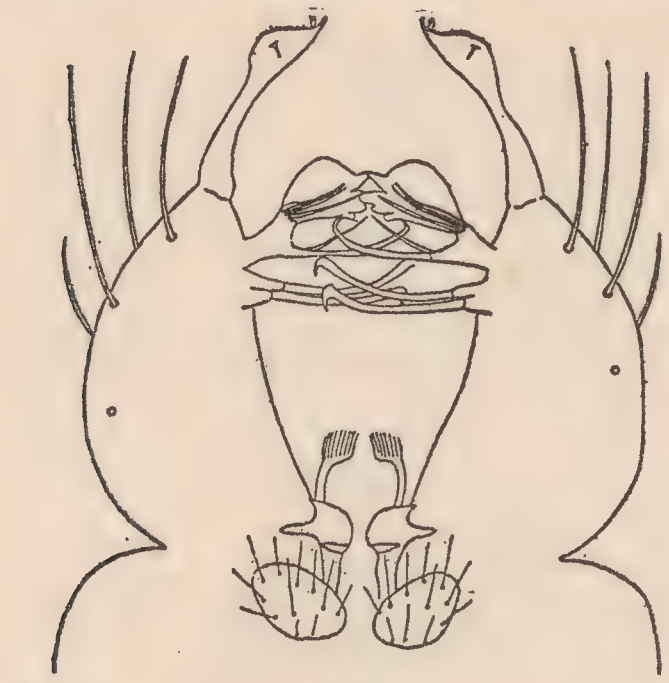
263. *Culex corentynensis* Dyar, male hypopygium
264. *Culex intrincatus* Brèthes, male hypopygium
265. *Culex manaosensis* Evans, male hypopygium
266. *Culex mutator* D. and K., male hypopygium and larva
267. *Culex inhibitator* D. and K., male hypopygium and larva



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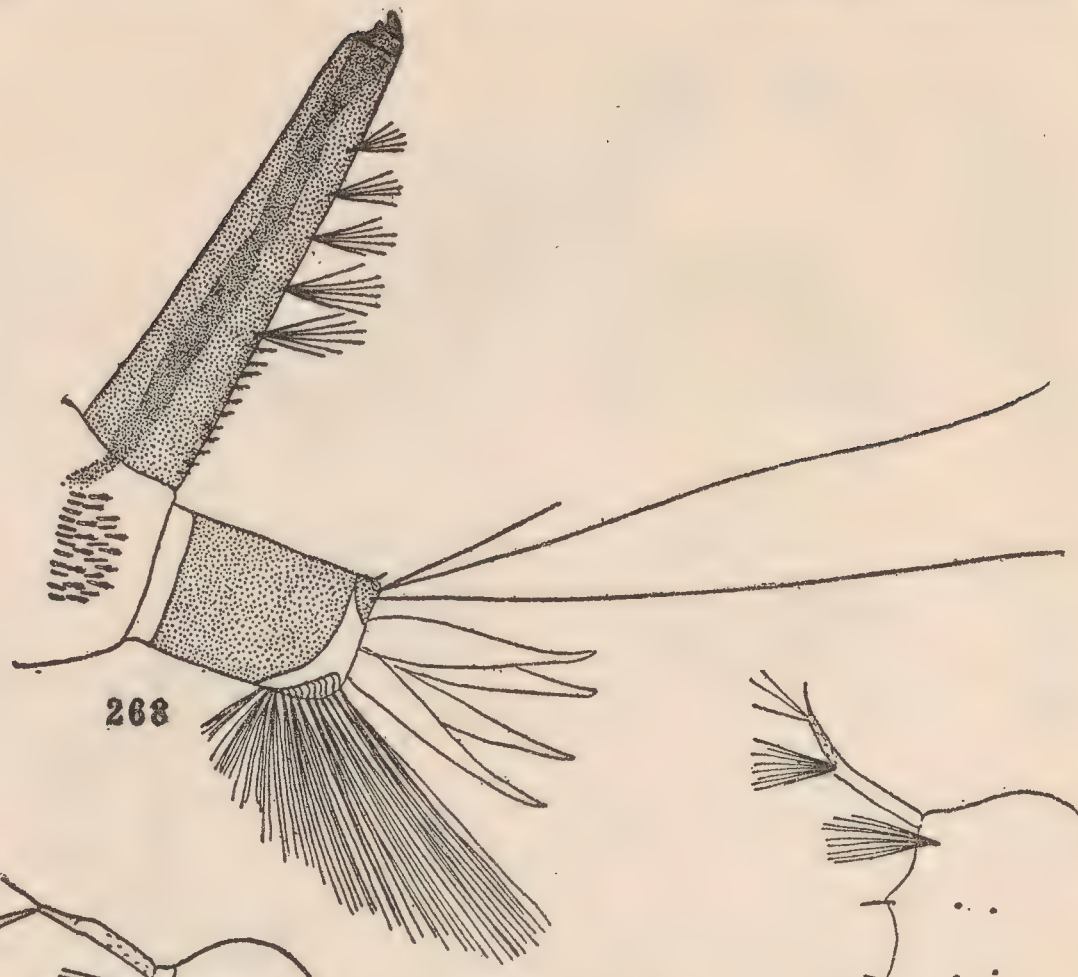

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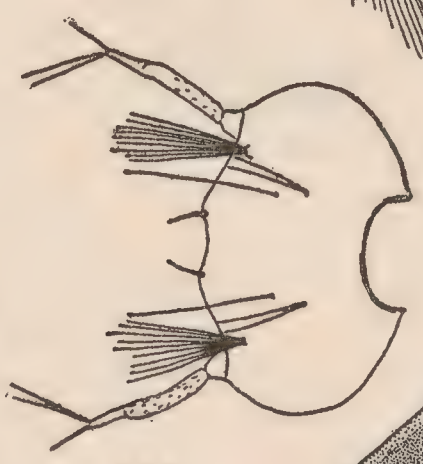

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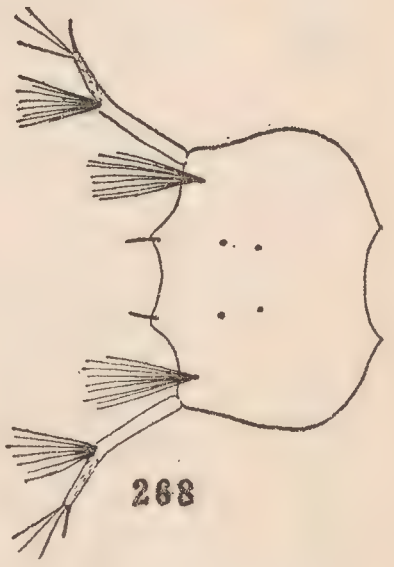

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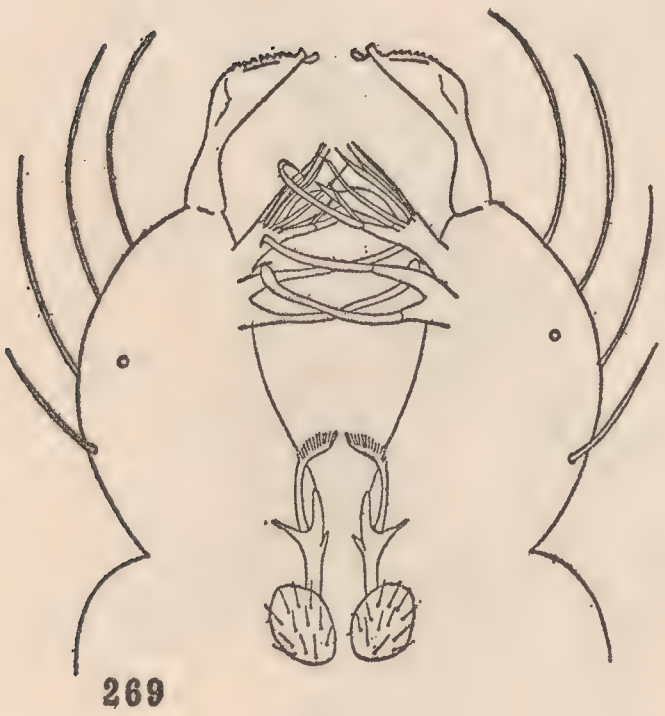

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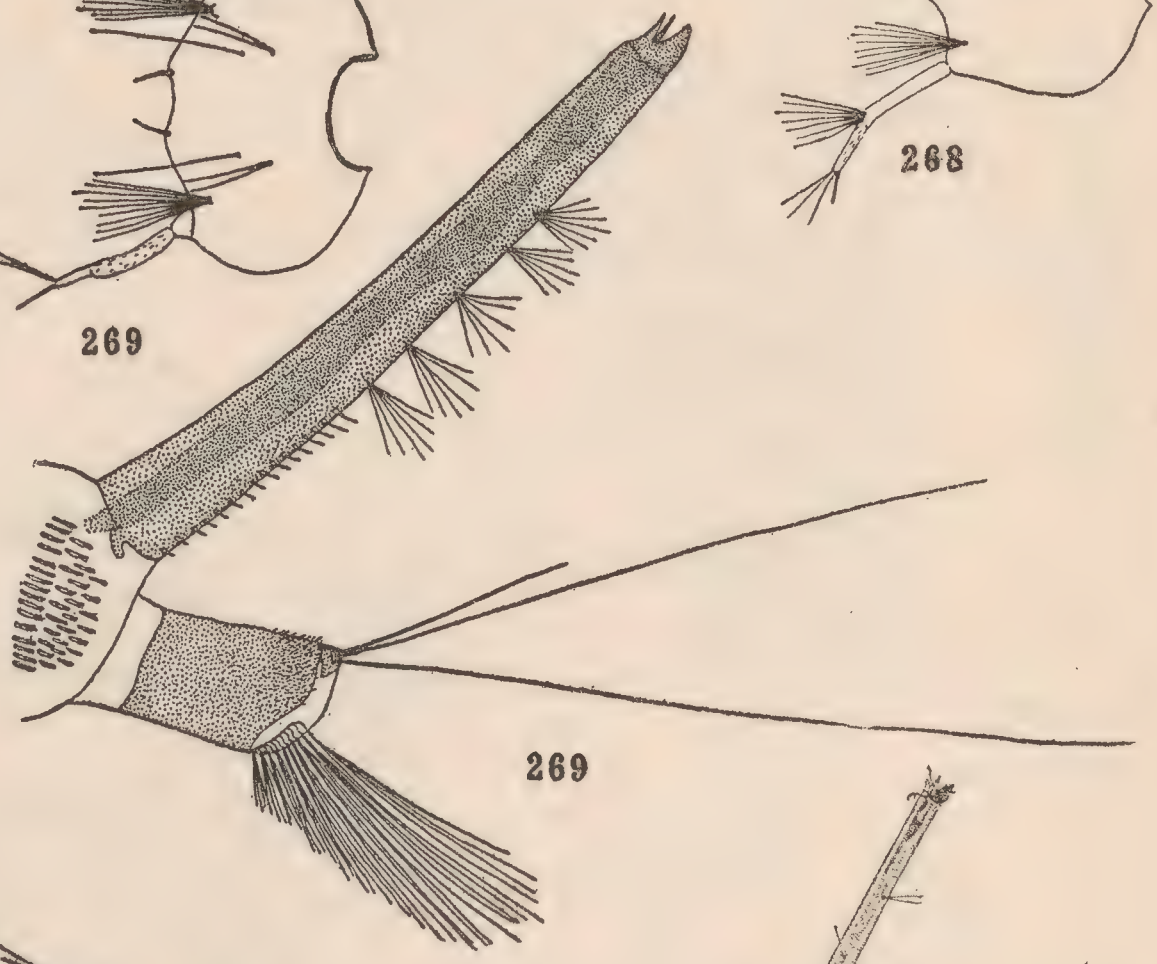

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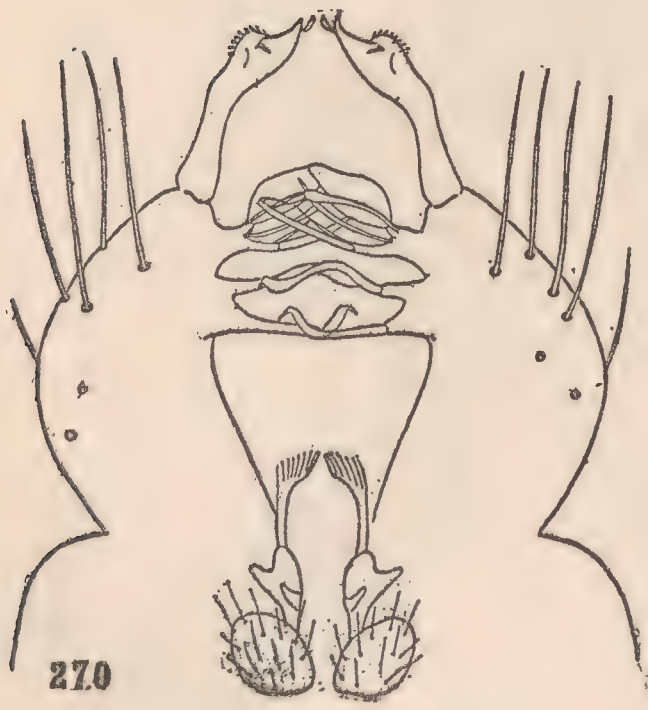

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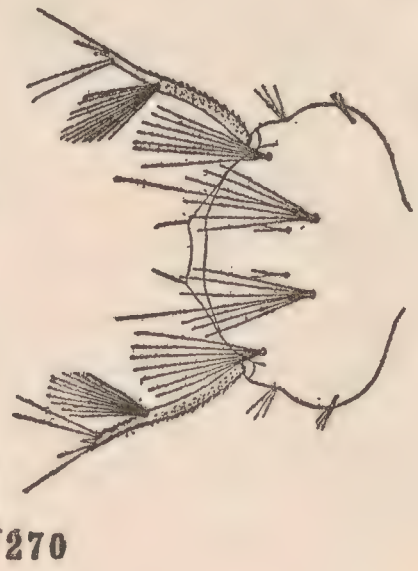

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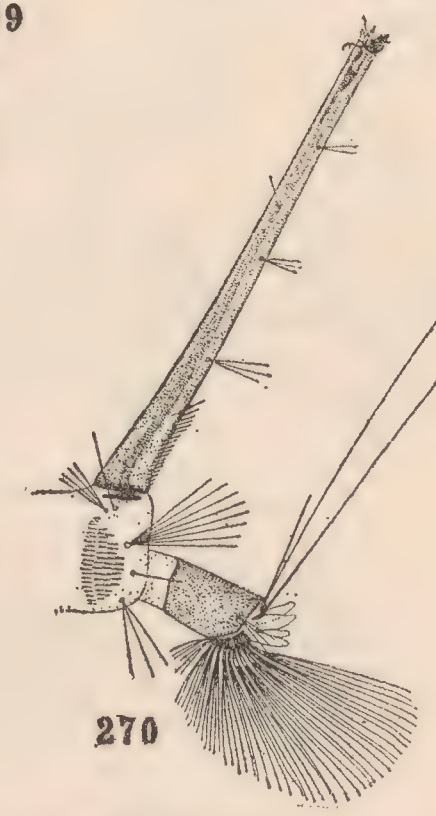
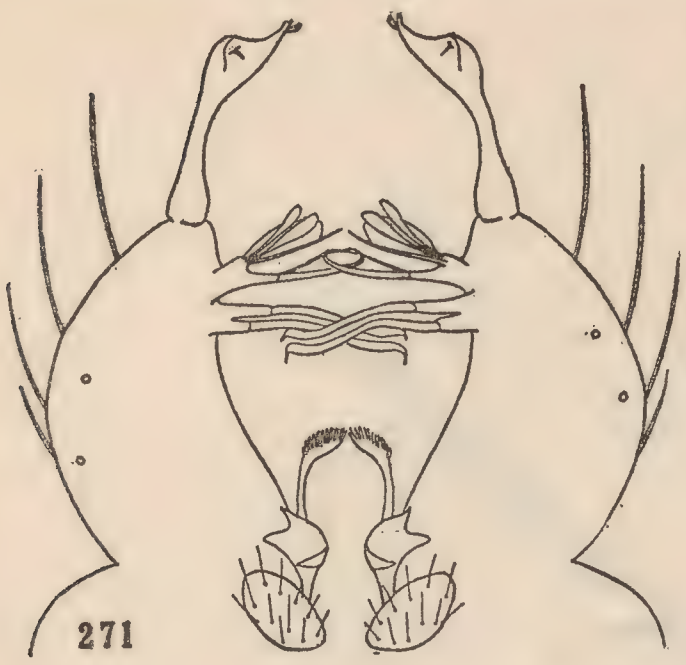


270

268. *Culex innominatus* Evans, male hypopygium and larva
269. *Culex evansæ* Root, male hypopygium and larva
270. *Culex carcinophilus* D. and K., male hypopygium and larva



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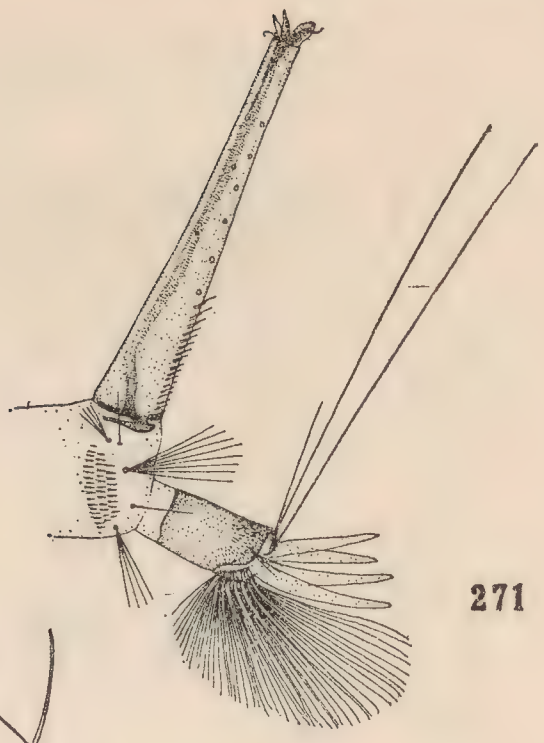

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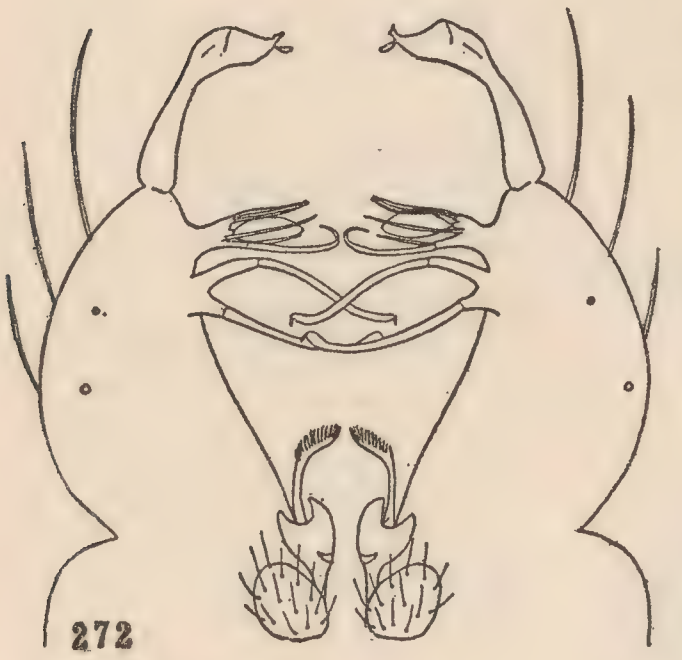

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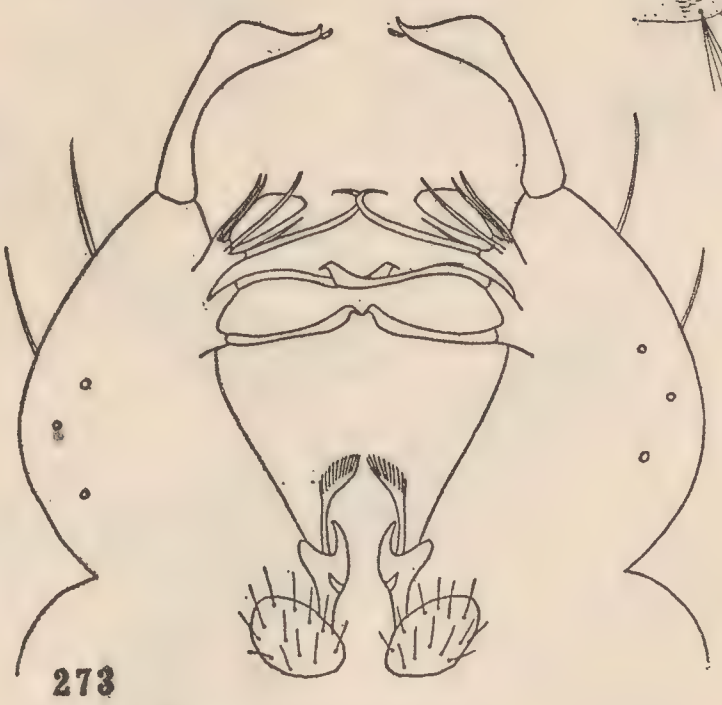

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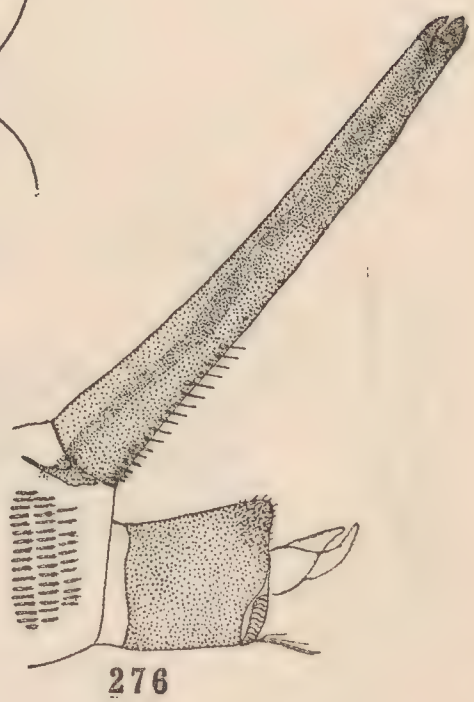

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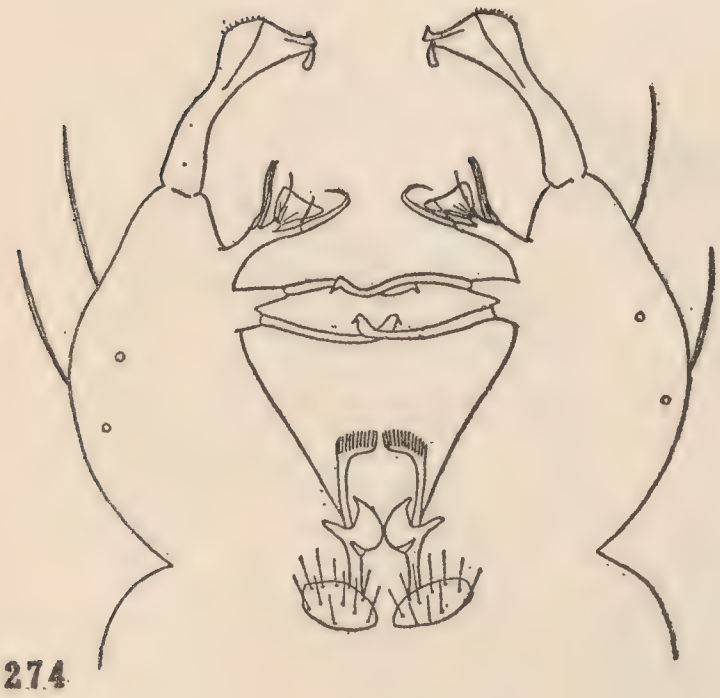

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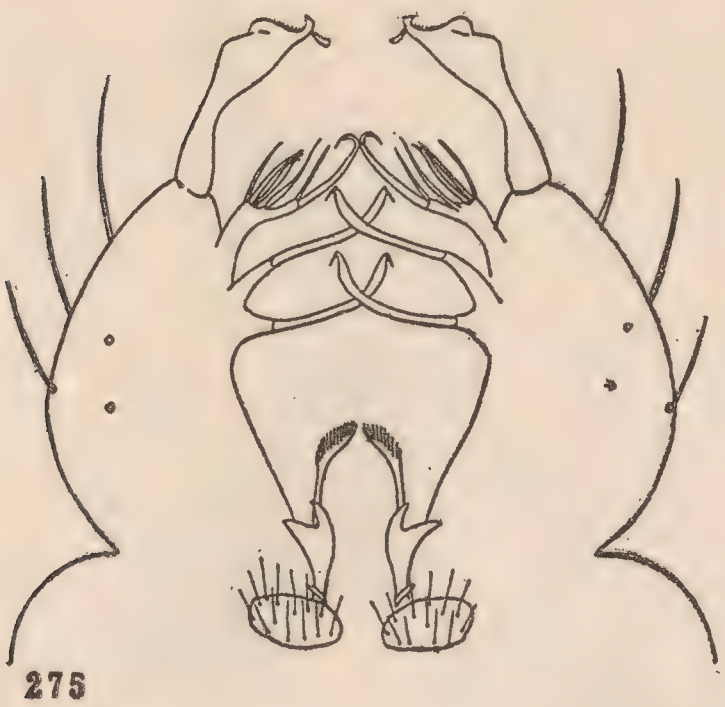
276

271. *Culex bastagarius* D. and K., male hypopygium and larva
272. *Culex vapulans* Dyar, male hypopygium
273. *Culex comminutor* Dyar, male hypopygium
274. *Culex eastor* Dyar, male hypopygium
276. *Culex curryi* Dyar, male hypopygium and larva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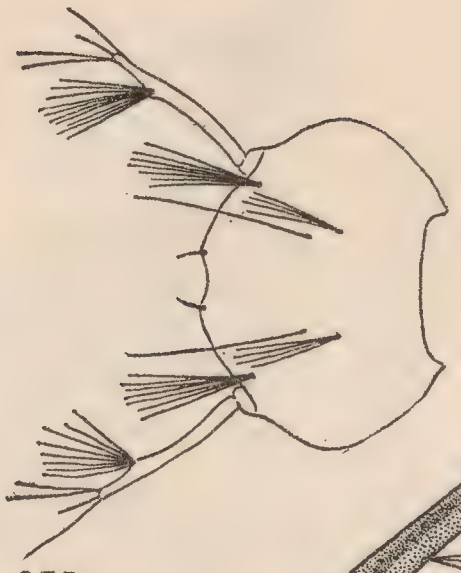
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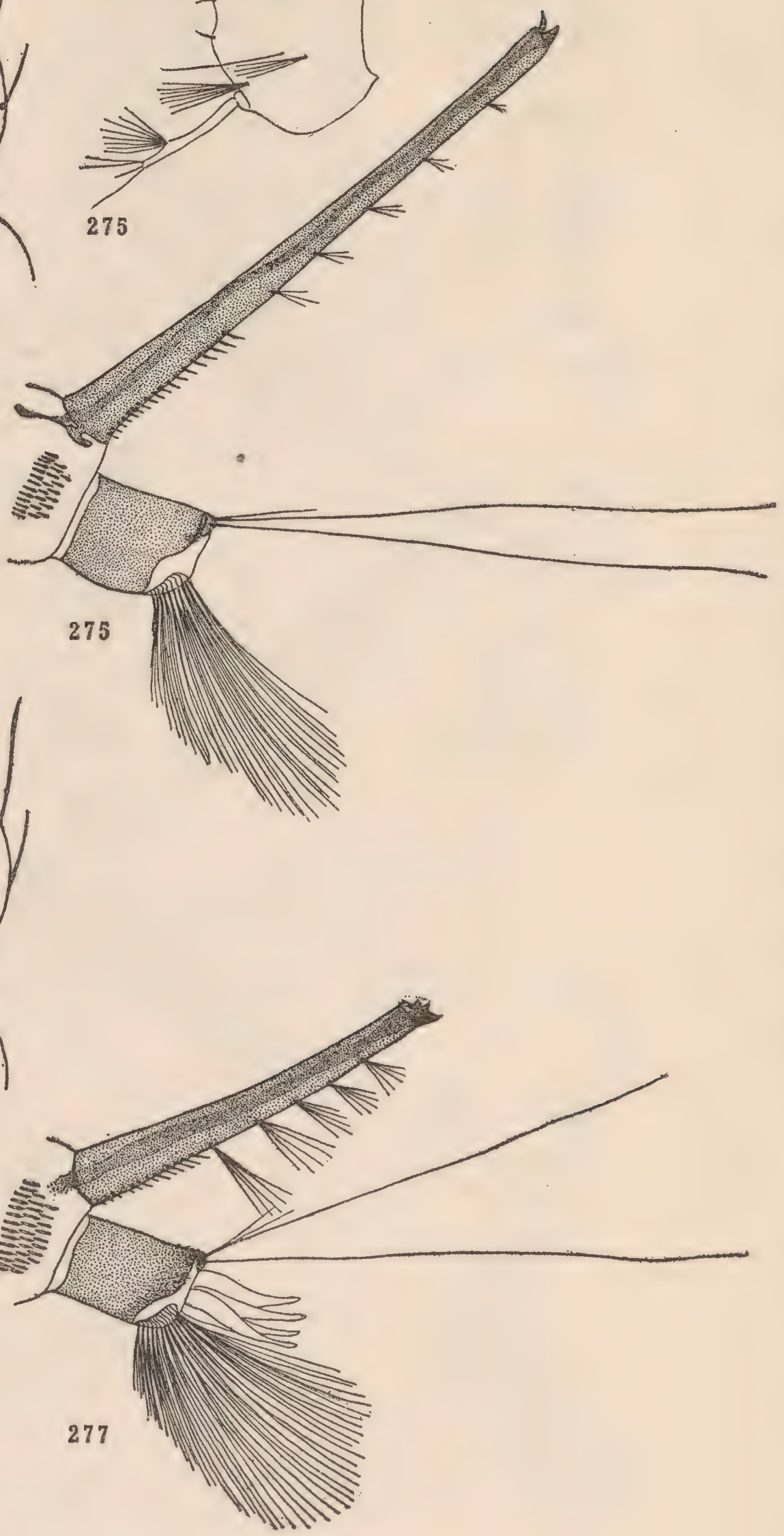
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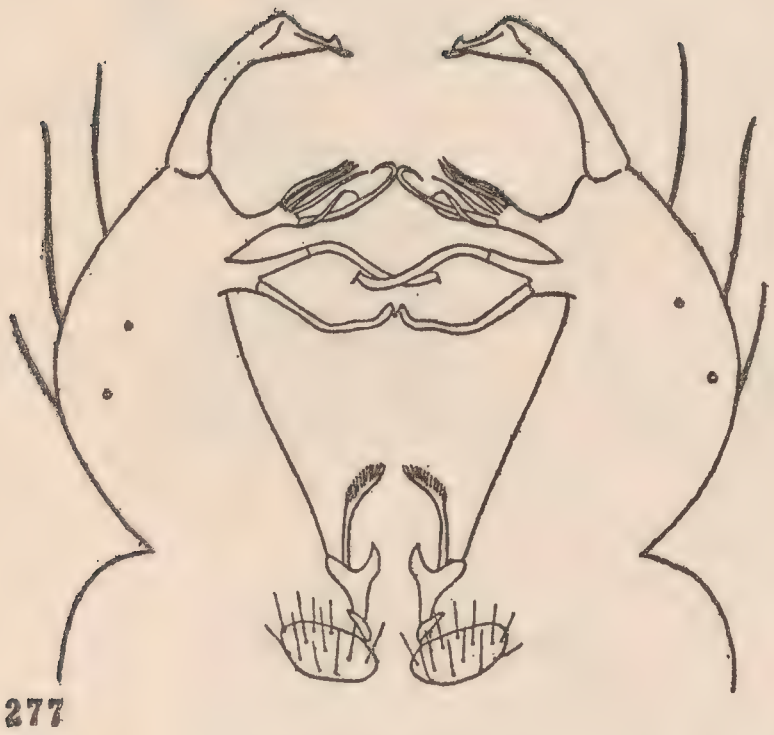
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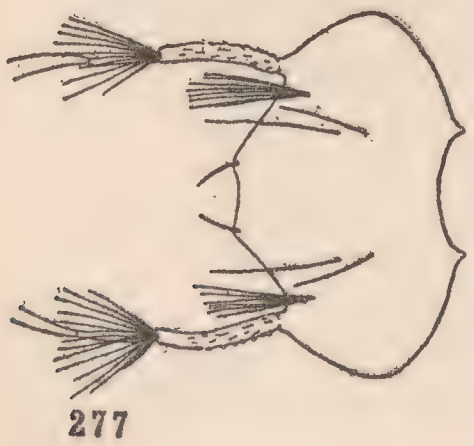
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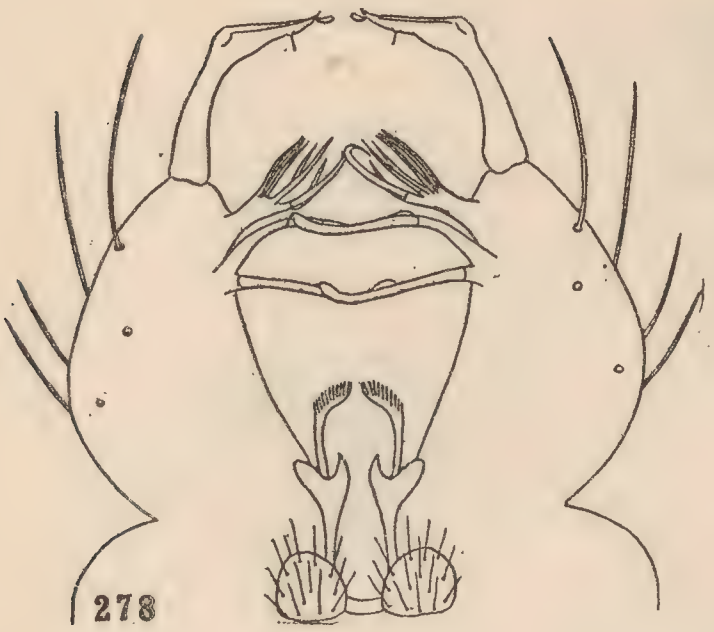
275. *Culex maxinocca* Dyar, male hypopygium and larva
277. *Culex educator* D. and K., male hypopygium and larva



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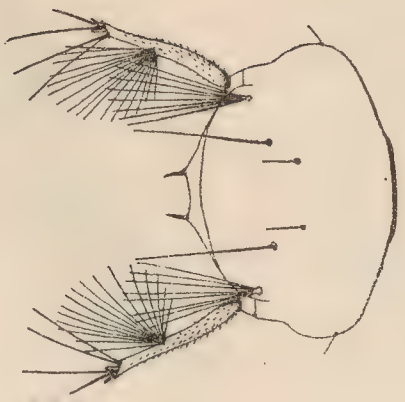

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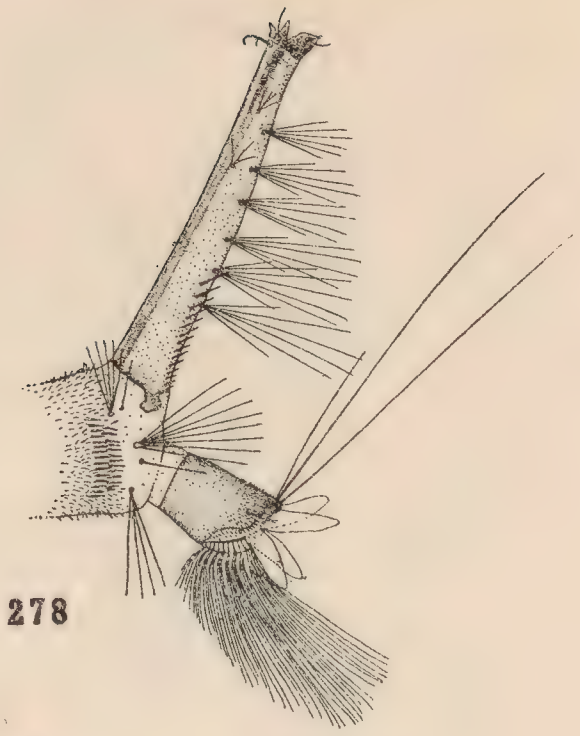

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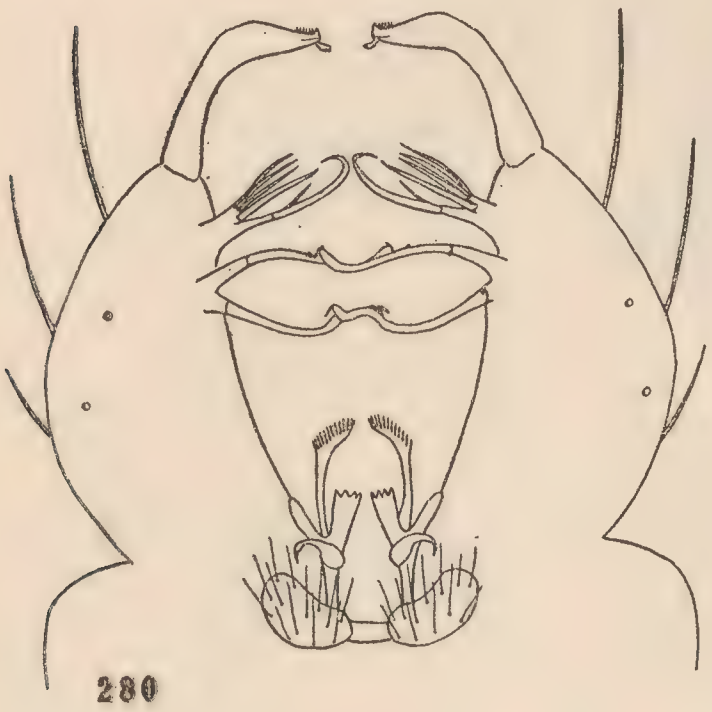

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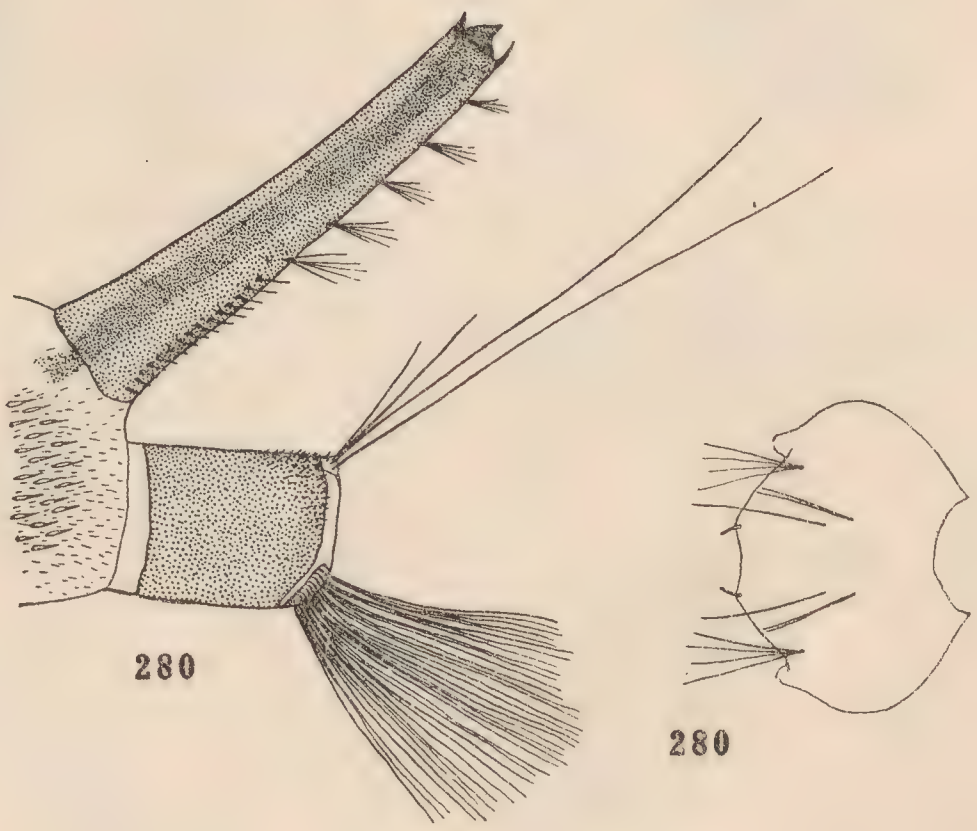

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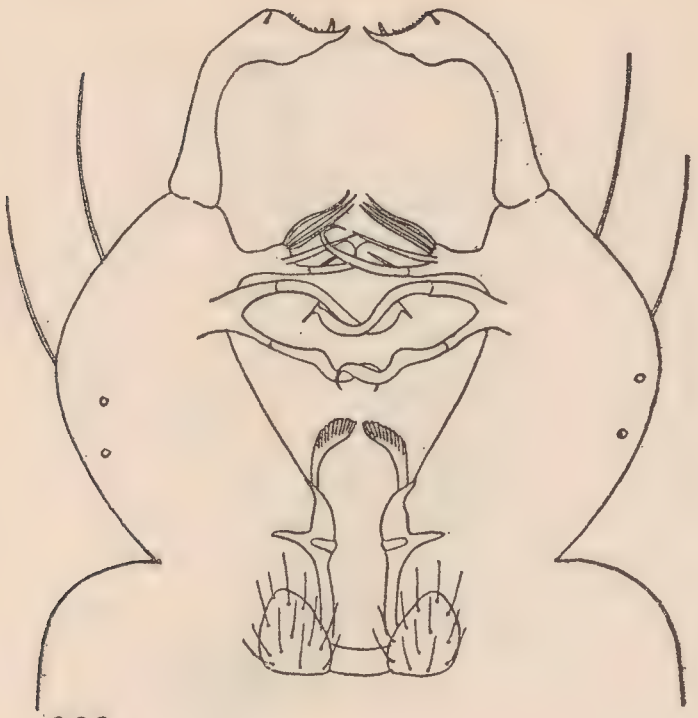
283

278. *Culex chrysonotum* D. and K., male hypopygium and larva
280. *Culex bibulus* Dyar, male hypopygium and larva
281. *Culex iolambdis* Dyar, male hypopygium
283. *Culex andricus* Root, male hypopygium



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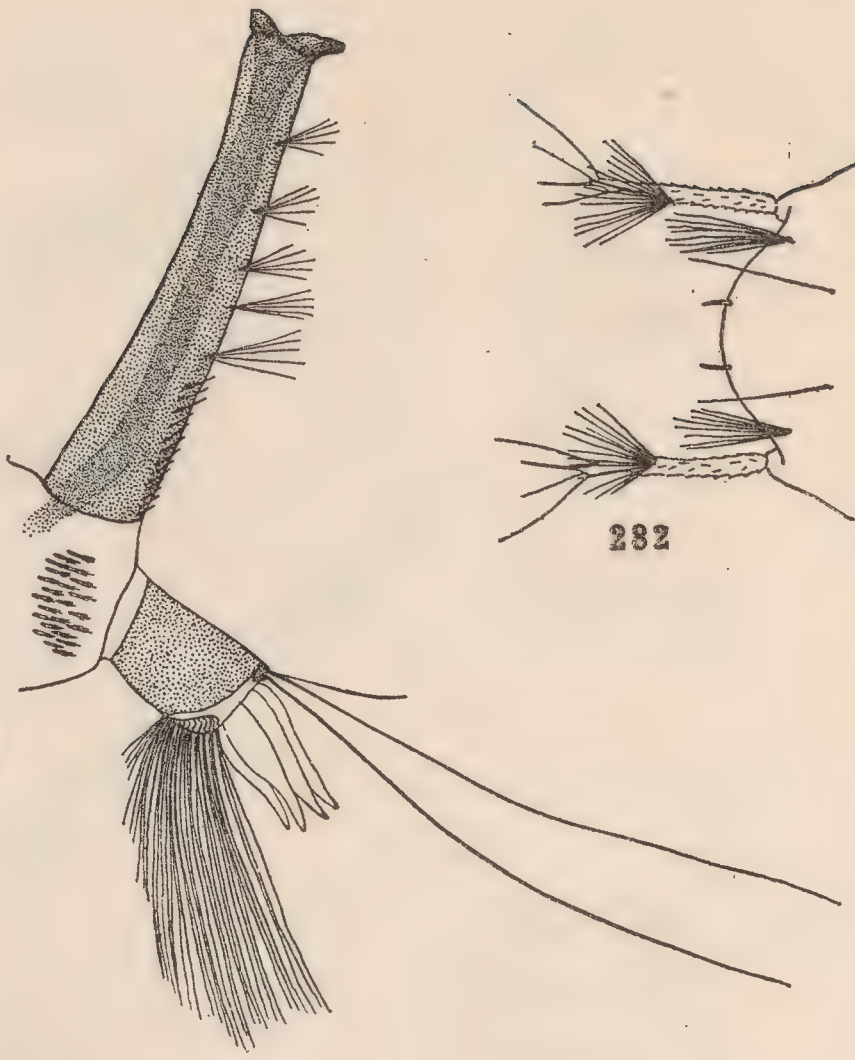

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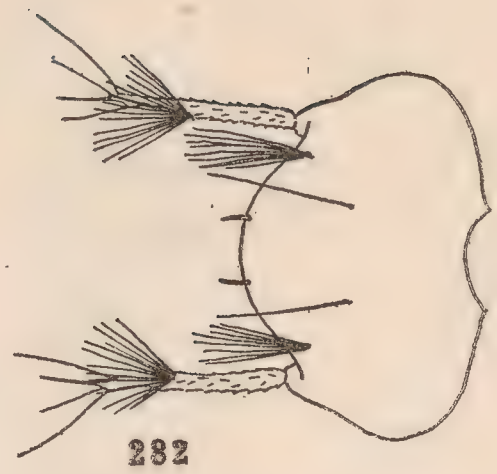

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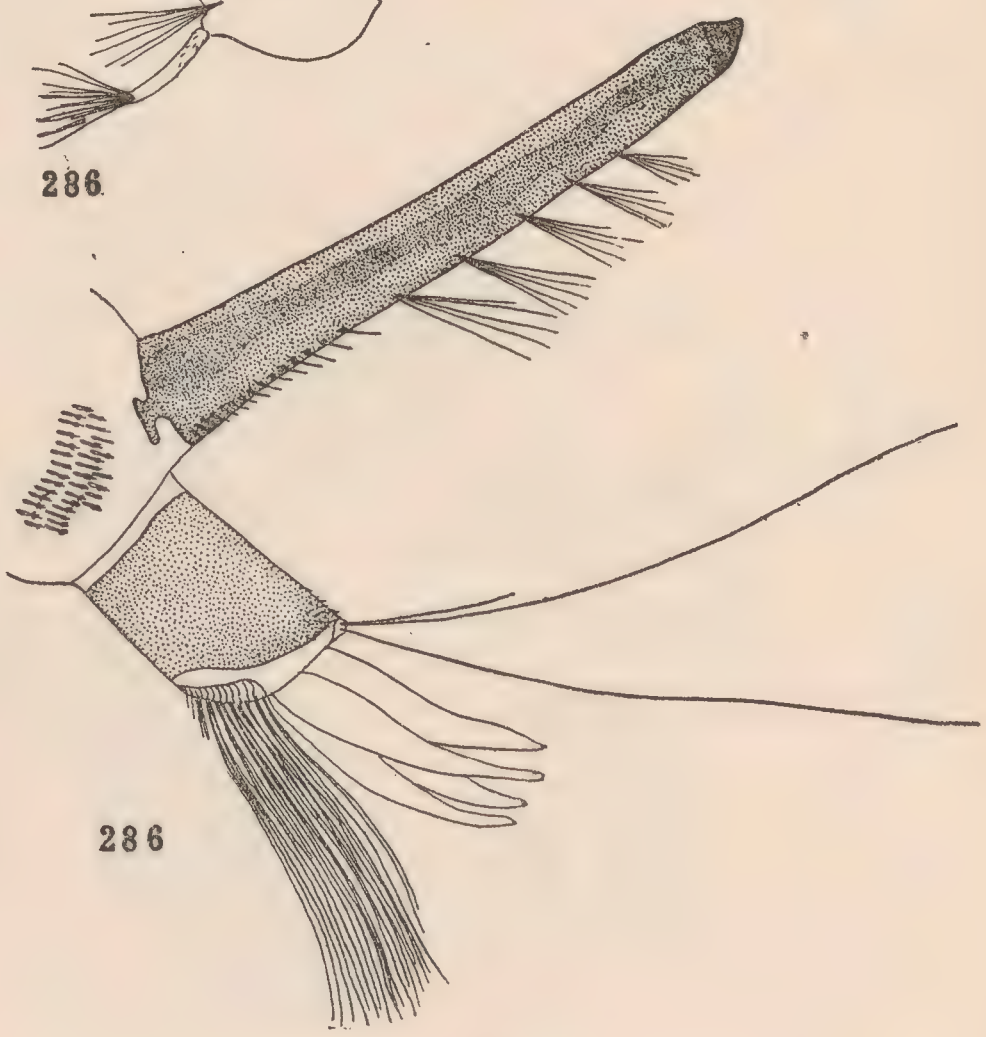

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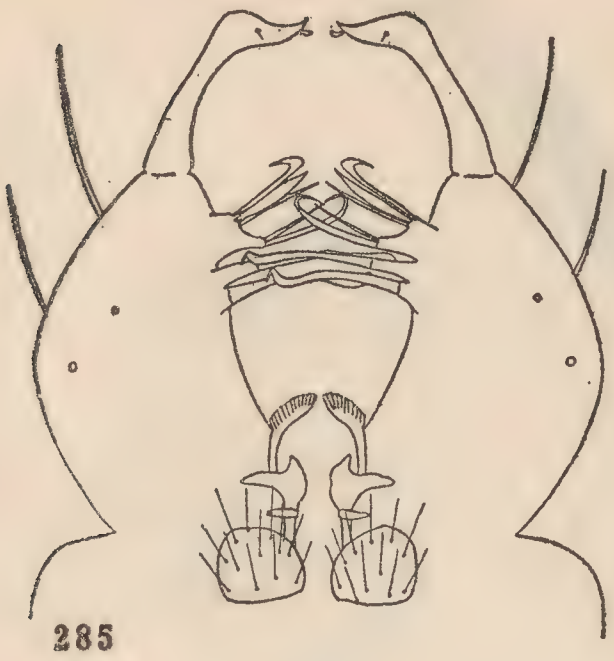
282. *Culex sursumptor* Dyar, male hypopygium and larva
284. *Culex jonistes* Dyar, male hypopygium
286. *Culex xivilis* Dyar, male hypopygium and larva



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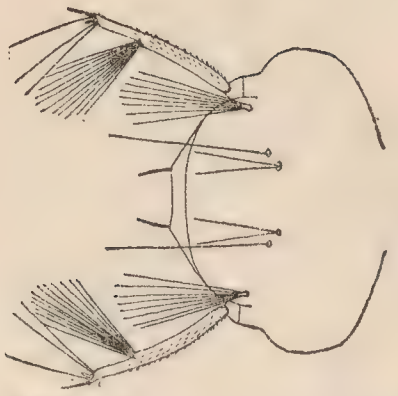

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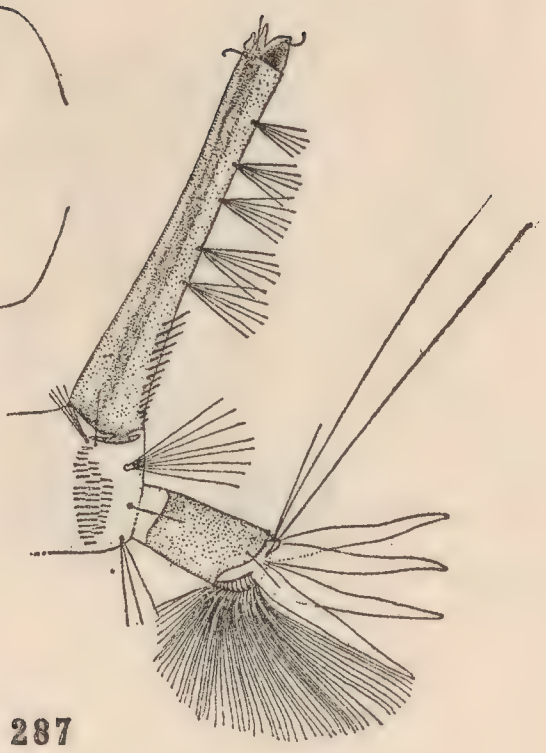

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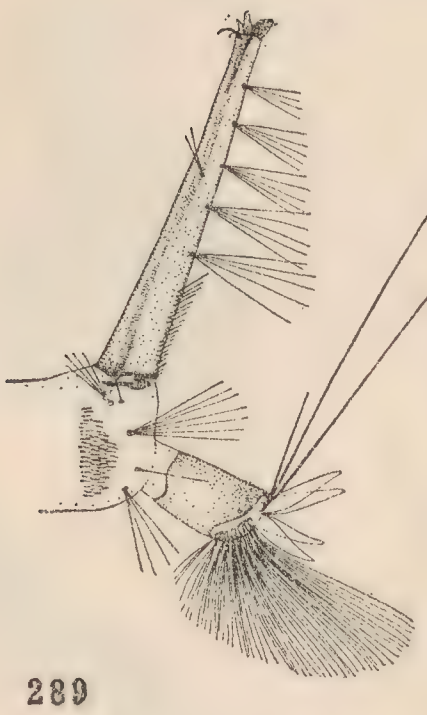

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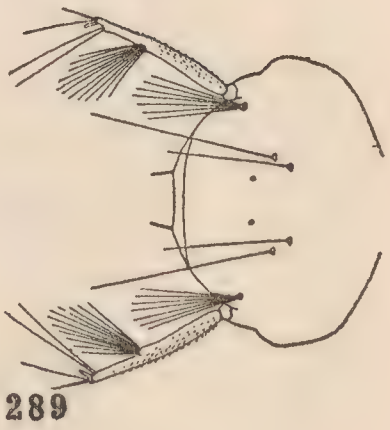

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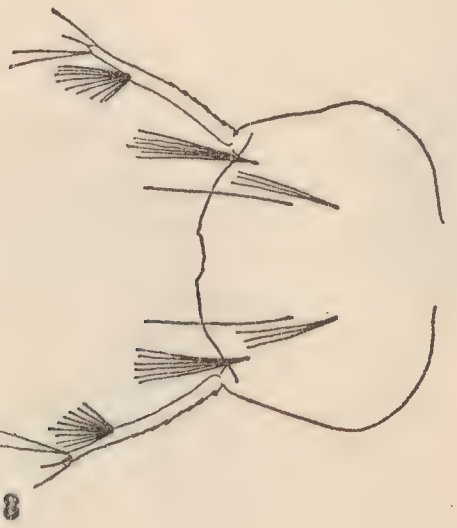

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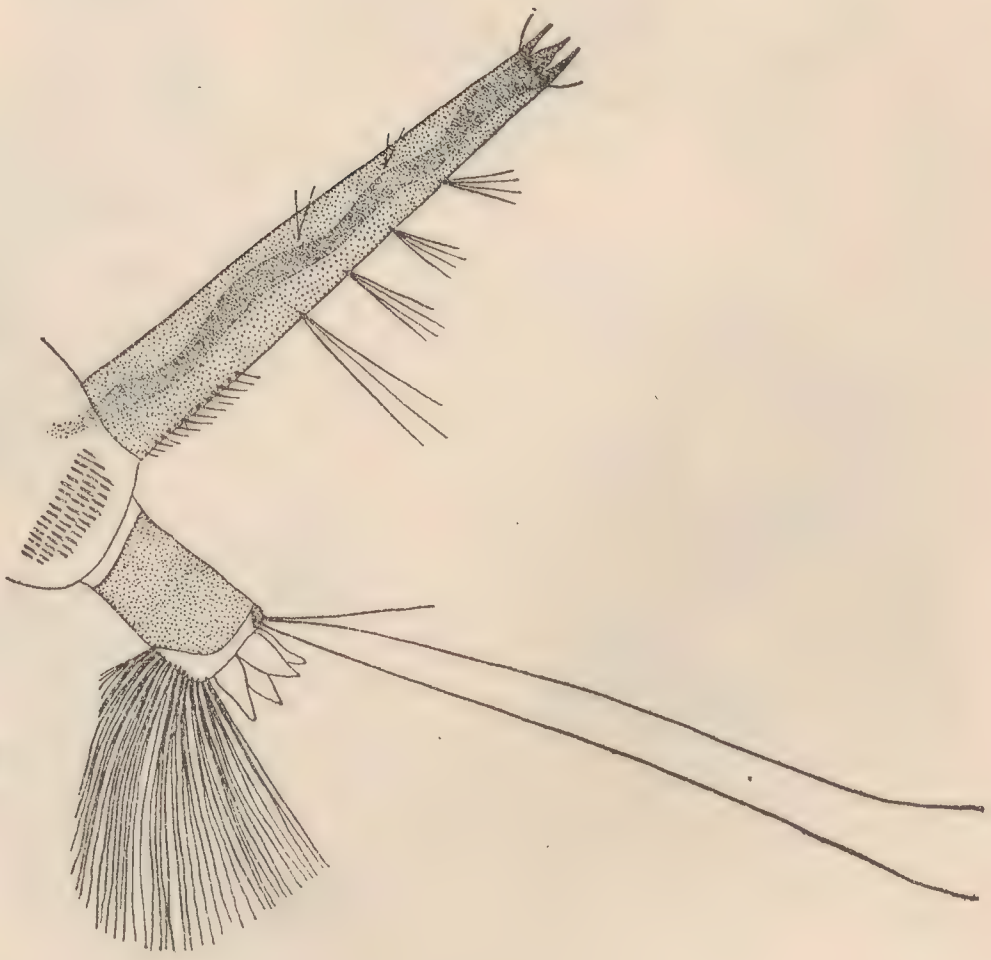

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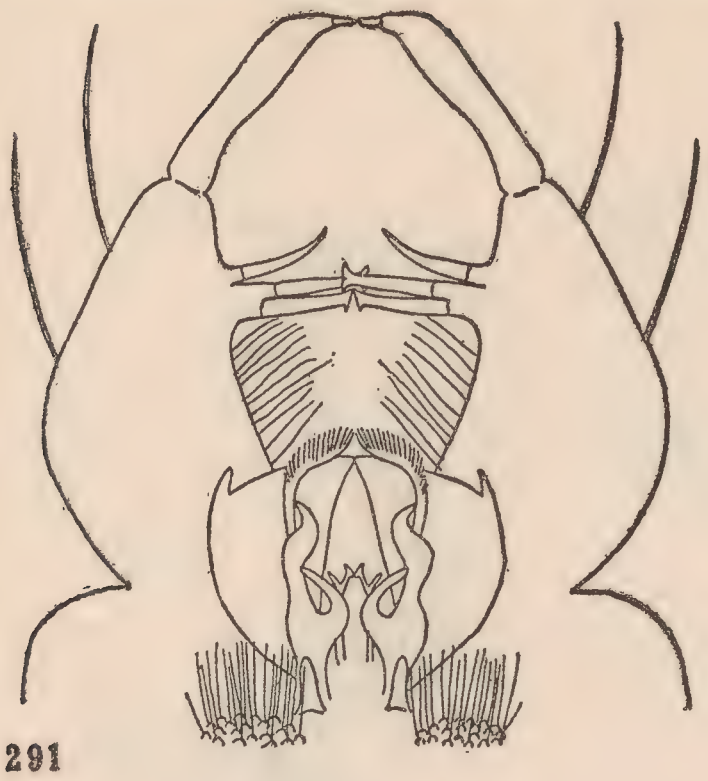
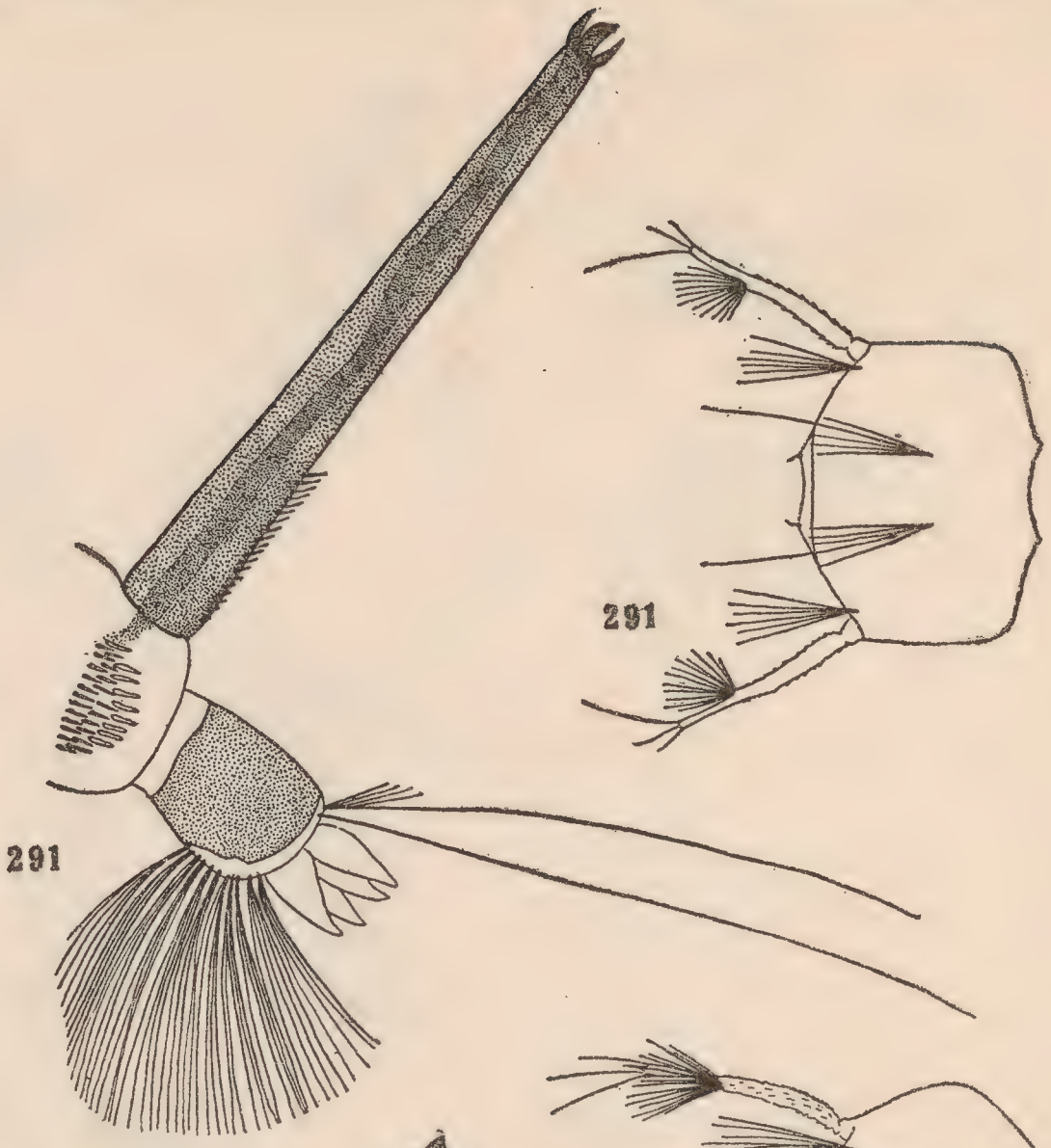
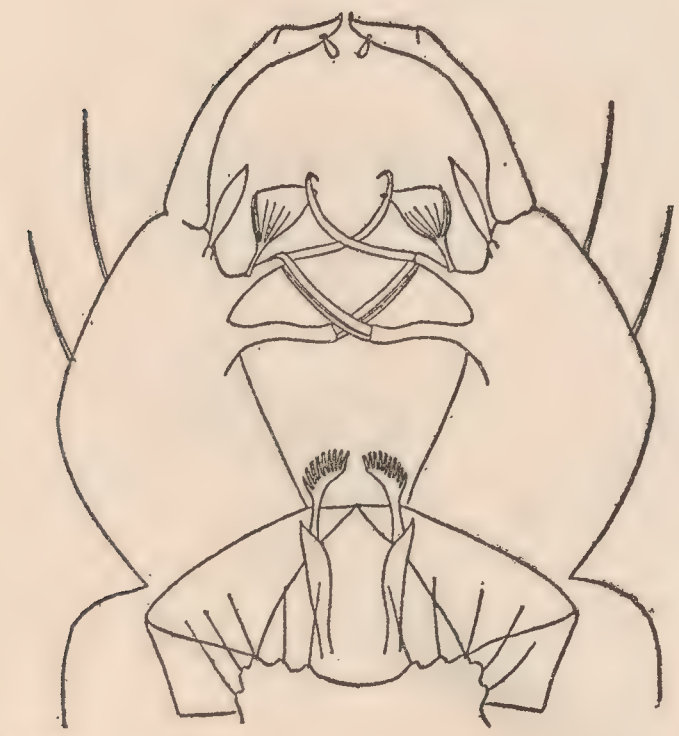
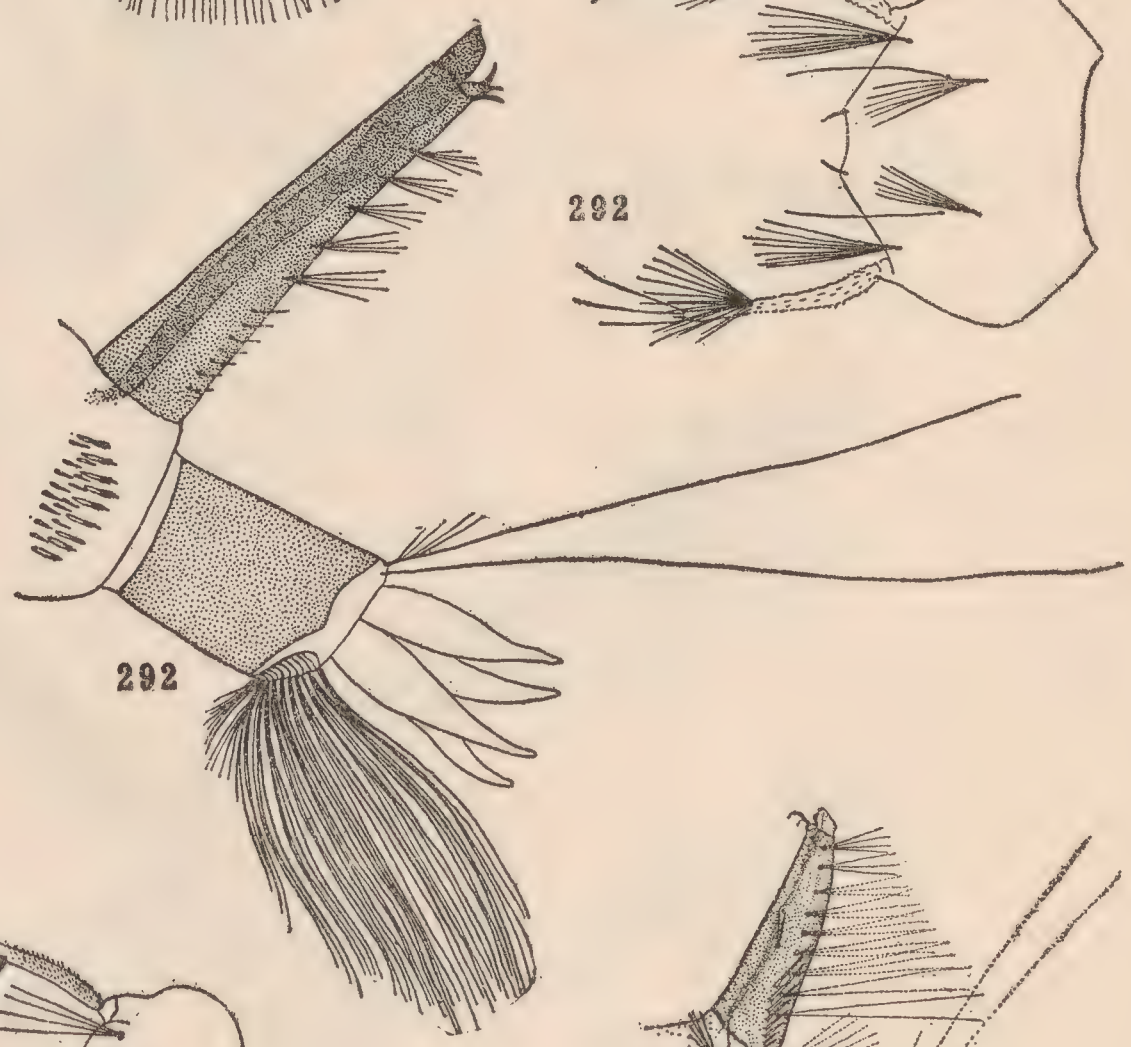
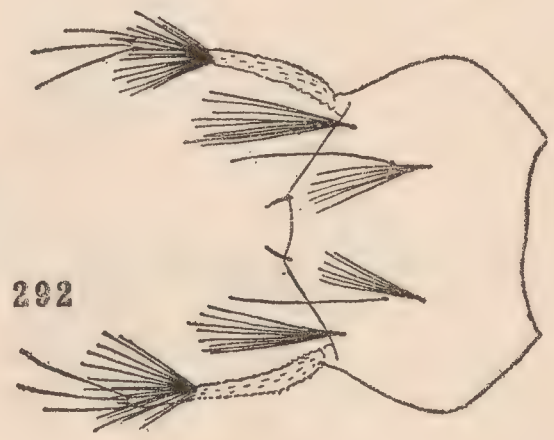
285. *Culex idottus* Dyar, male hypopygium
287. *Culex simulator* D. and K., larva
288. *Culex decorator* D. and K., larva
289. *Culex gravitator* D. and K., larva
290. *Culex theobaldi* Lutz, male hypopygium

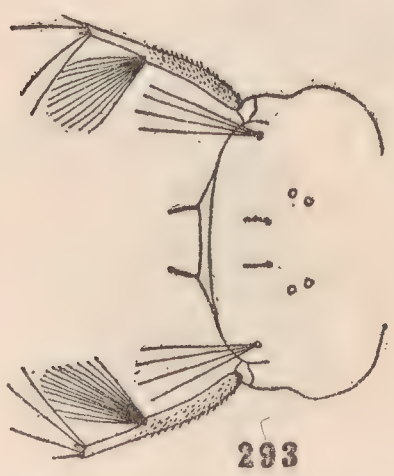


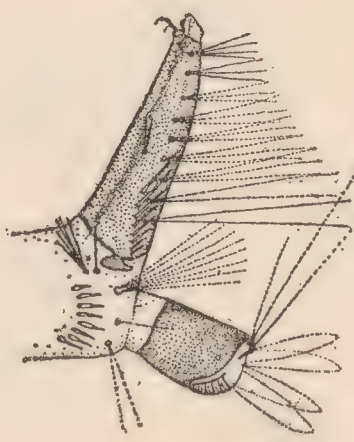




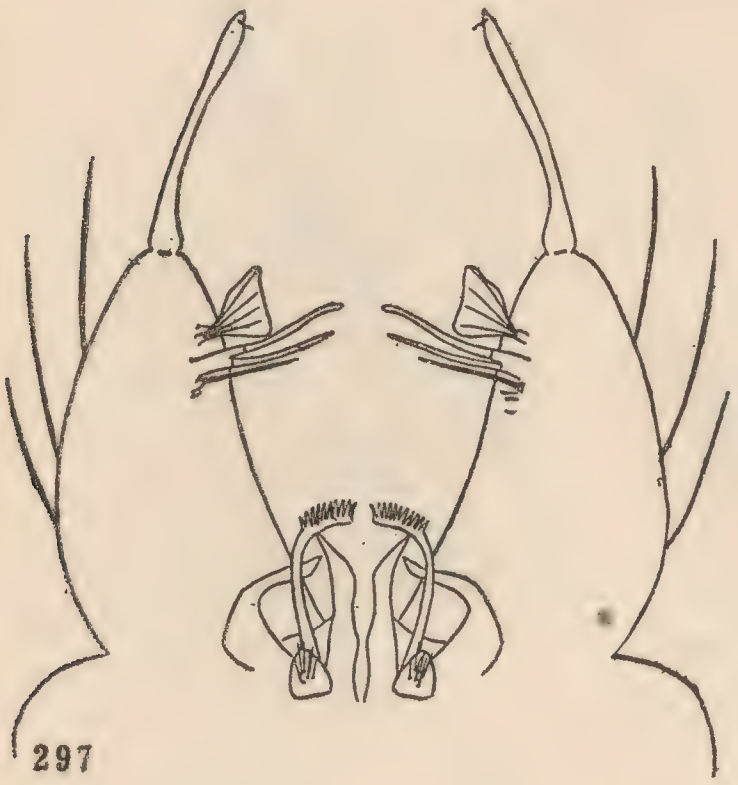


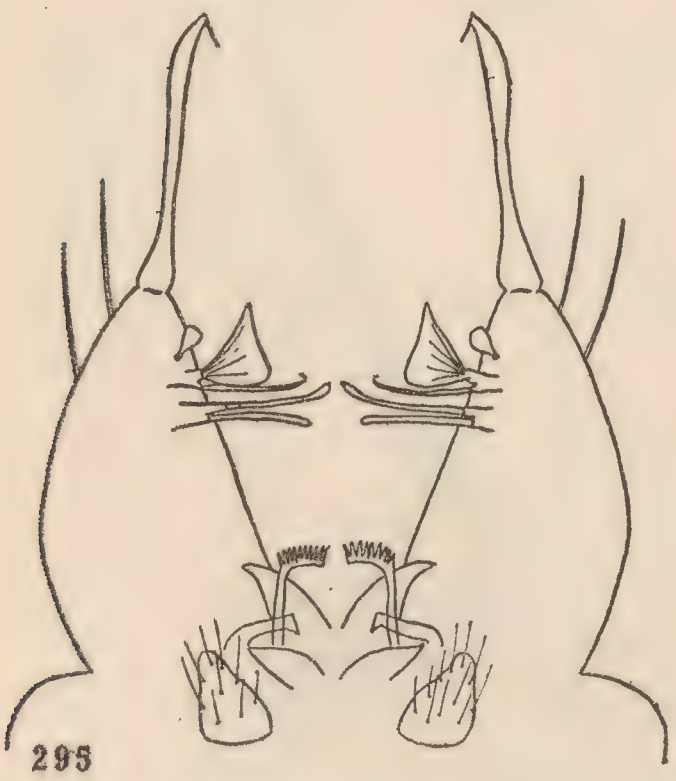


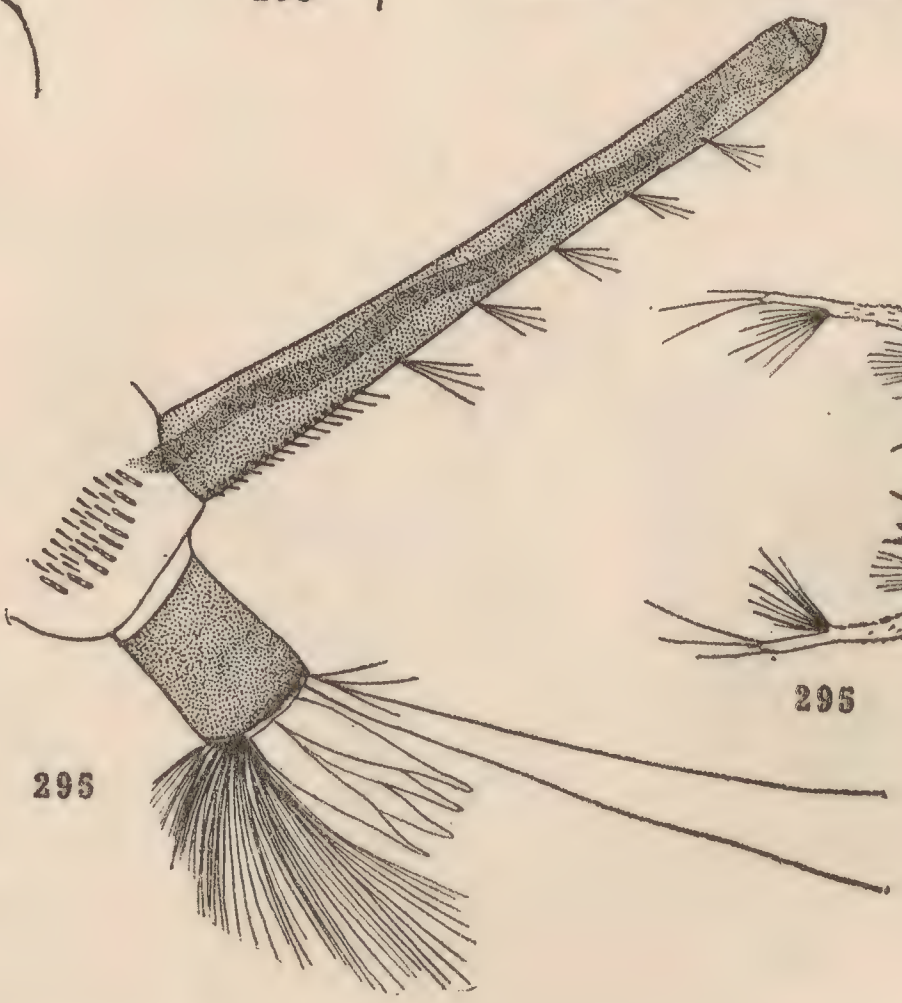




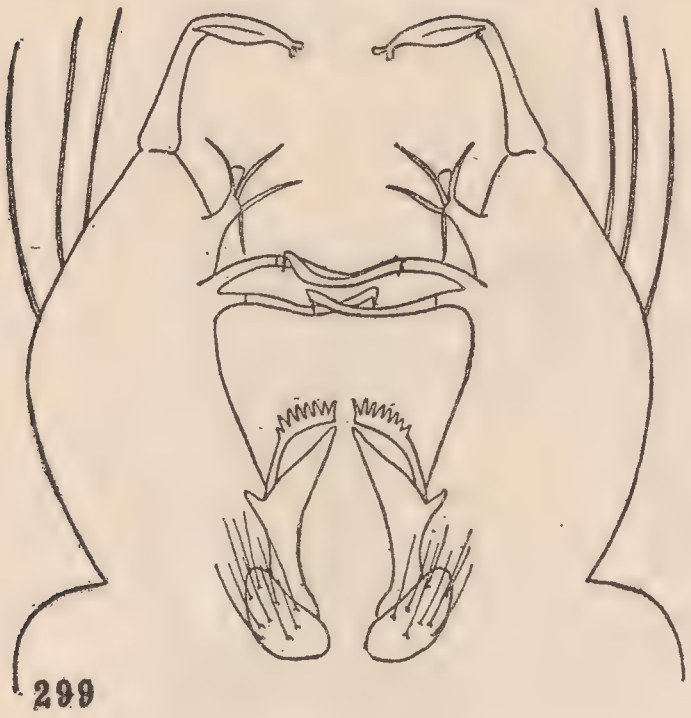
291. *Culex latisquama* Coq., male hypopygium and larva
292. *Culex aikenii* Aiken, male hypopygium and larva
293. Hypopygium: *Culex atratus* Theob.
Larva: *Culex pilosus* D. and K.

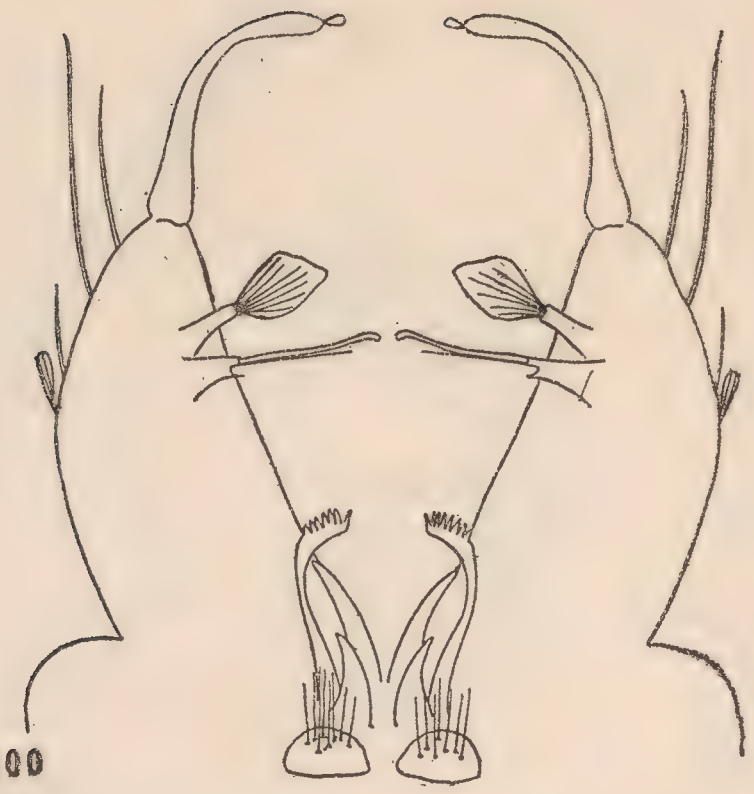


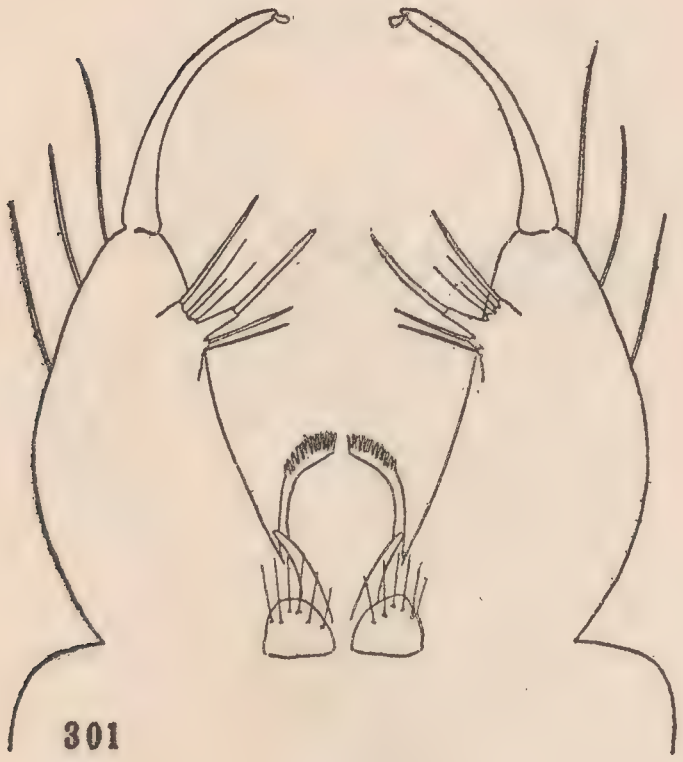


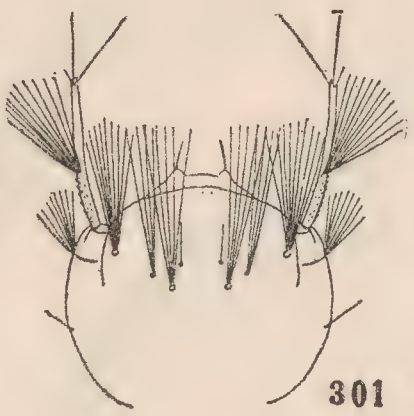


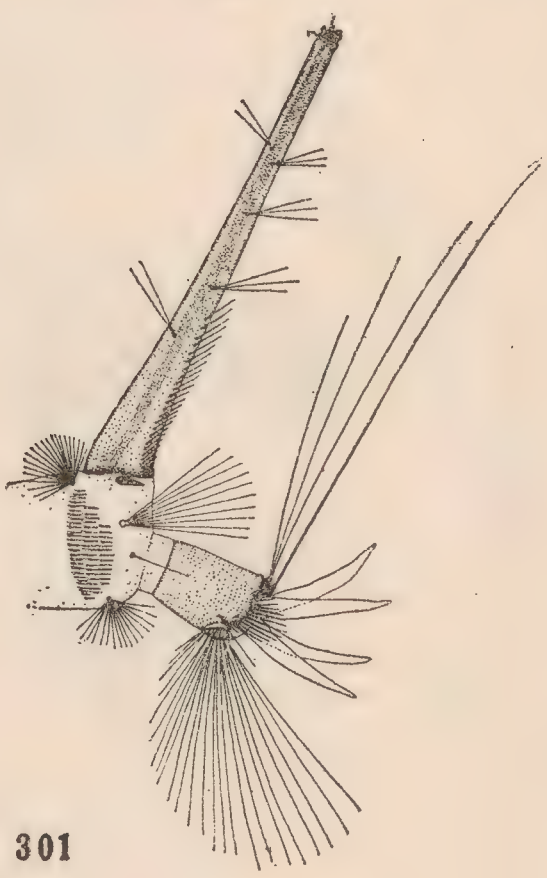
294. *Culex zeteci* Dyar, male hypopygium
295. *Culex dunni* Dyar, male hypopygium and larva
296. *Culex commevynensis* B.-W. and B., male hypopygium
297. *Culex ruffinis* D. and S., male hypopygium
298. *Culex spissipes* Theob., male hypopygium

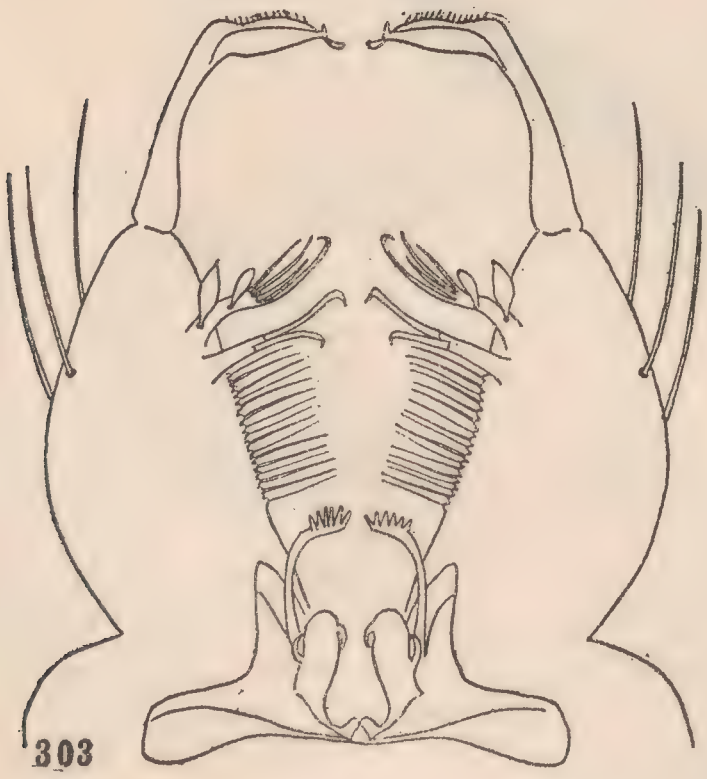


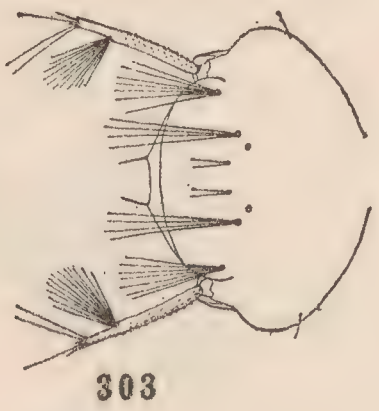


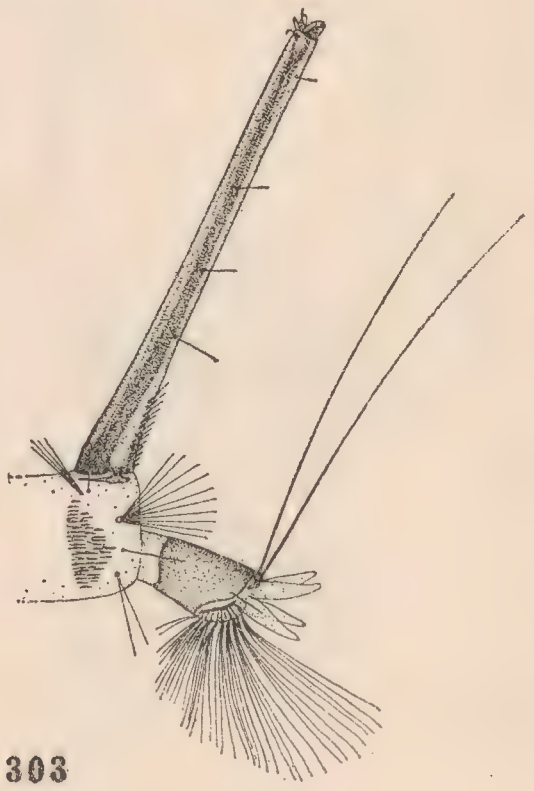






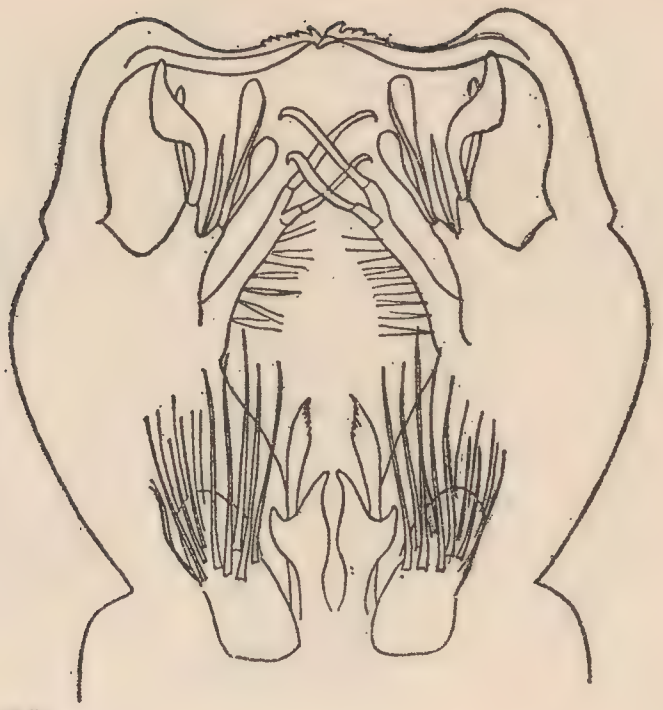






299. *Culex homœopas* D. and L., male hypopygium
300. *Culex loturus* Dyar, male hypopygium
301. *Culex americanus* N.-L., male hypopygium and larva
303. *Culex conservator* D. and K., male hypopygium and larva

302



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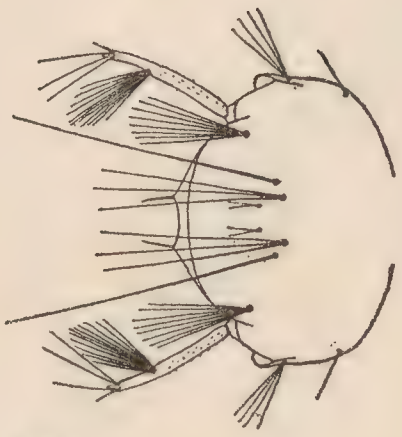

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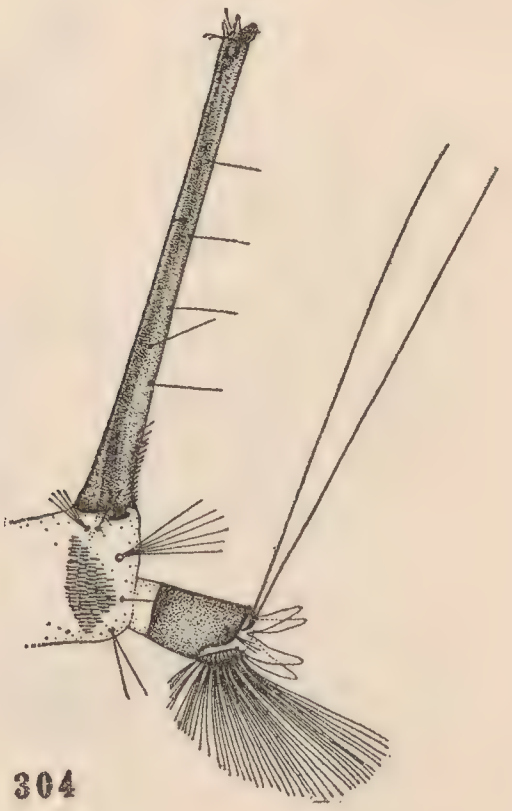

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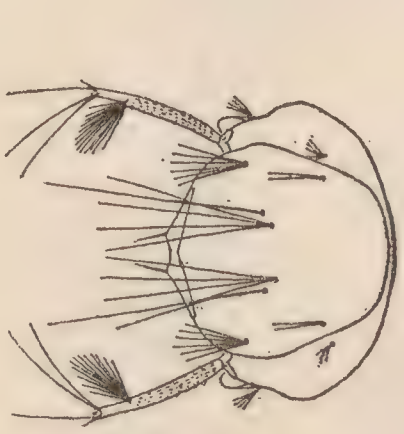

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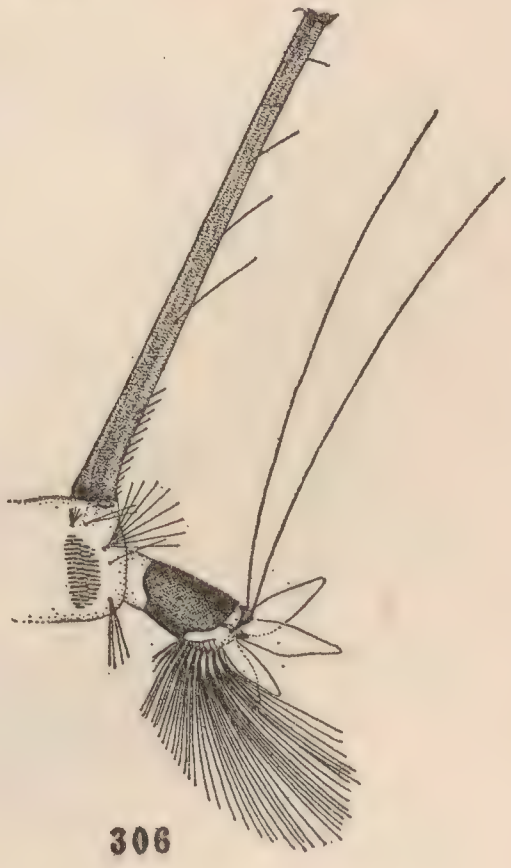
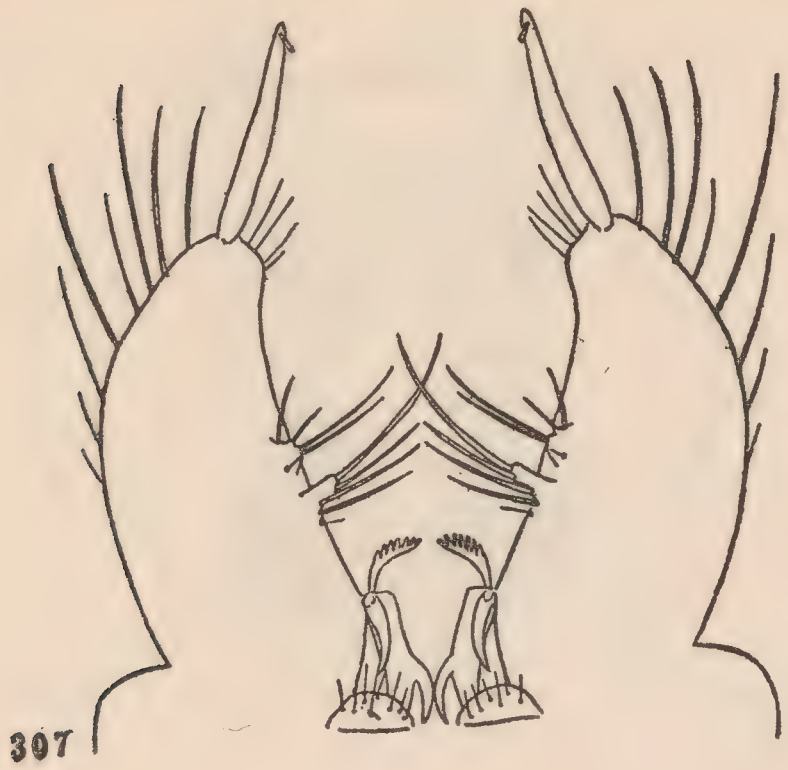


306

302. *Culex antillum-magnorum* Dyar, male hypopygium
304. *Culex restrictor* D. and K., male hypopygium and larva
305. *Culex originator* G. and E., male hypopygium
306. *Culex corrigani* D. and K., male hypopygium and larva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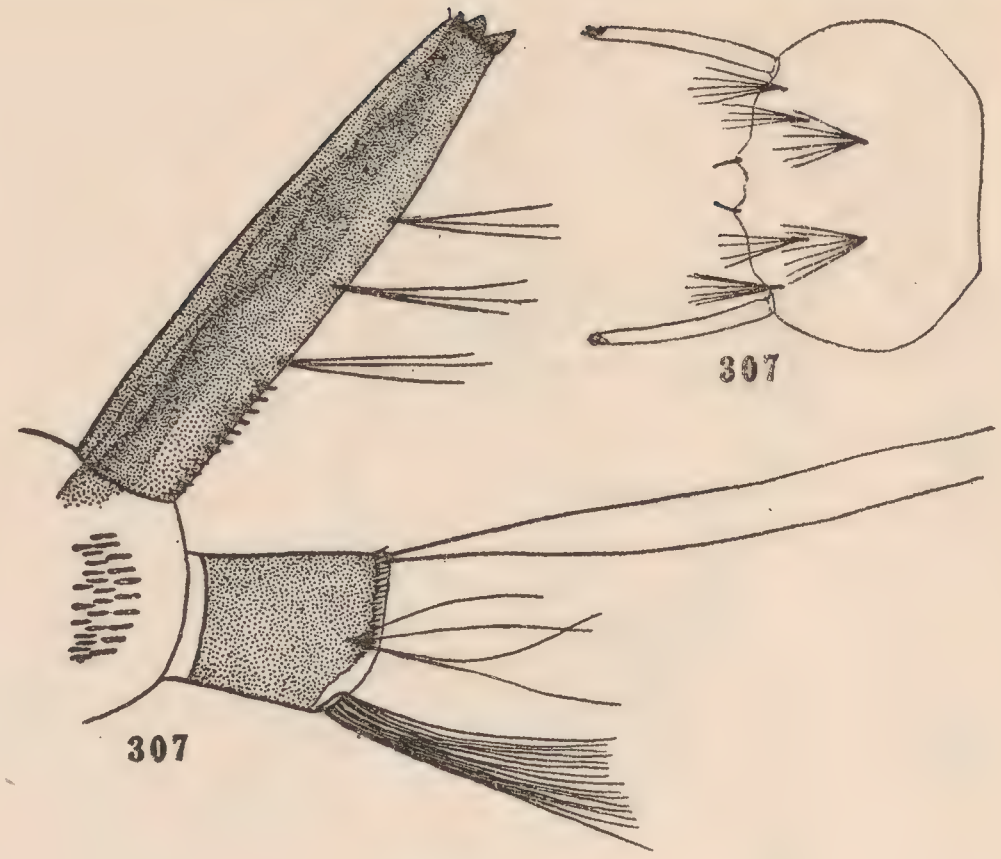
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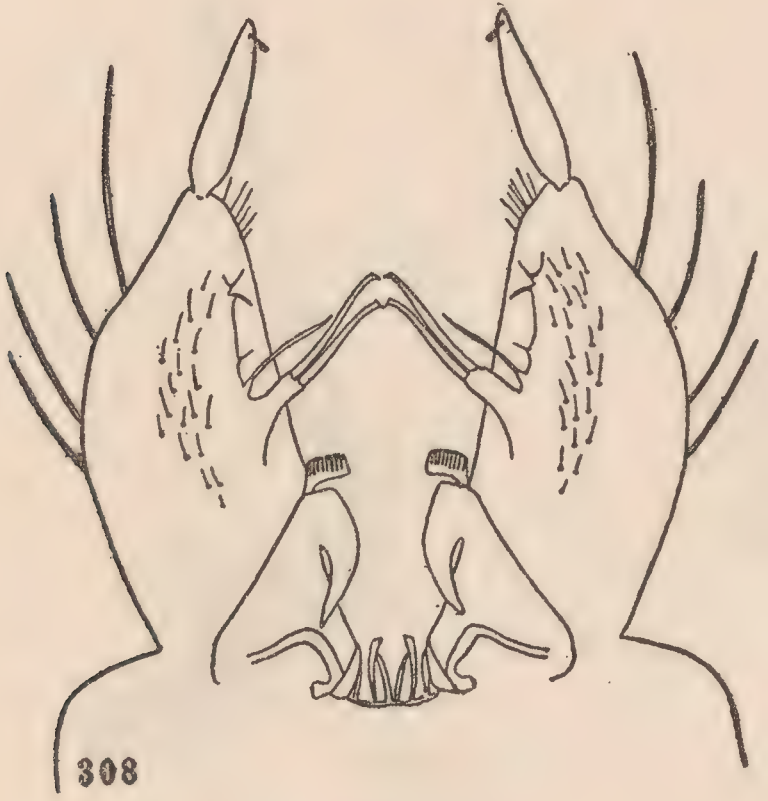
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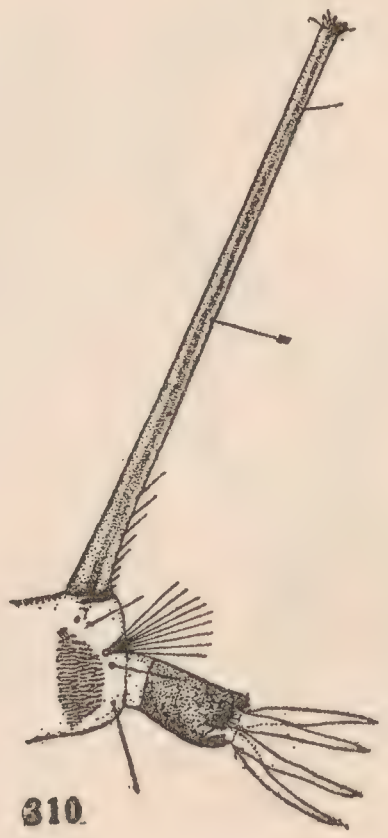
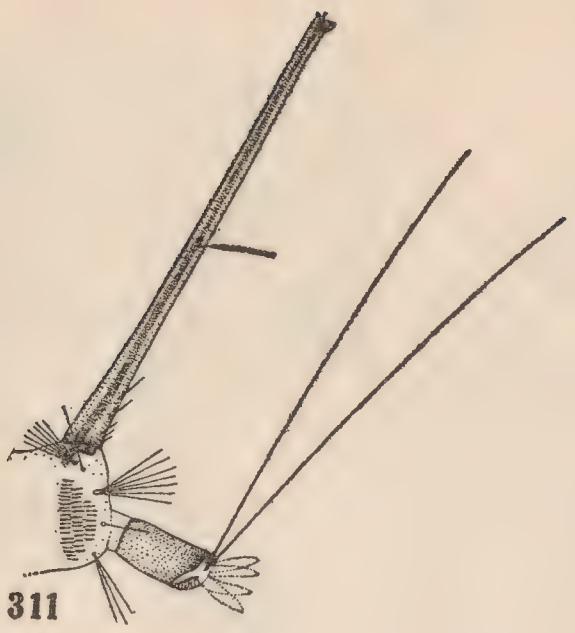

310

307. *Culex gairus* Root, male hypopygium and larva
308. *Culex hedys* Root, male hypopygium
309. *Culex aphylactus* Root, male hypopygium
310. *Culex consolator* D. and K., male hypopygium and larva

311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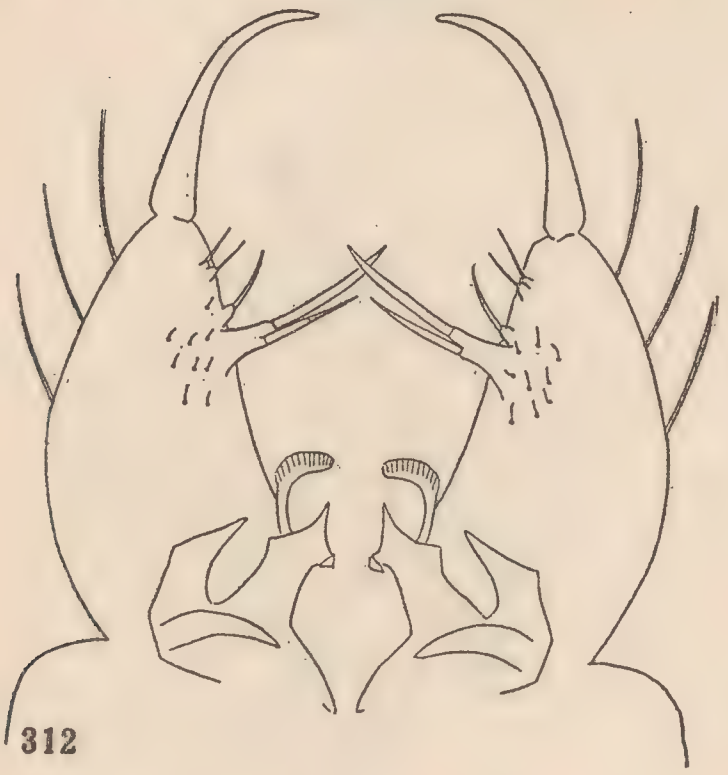
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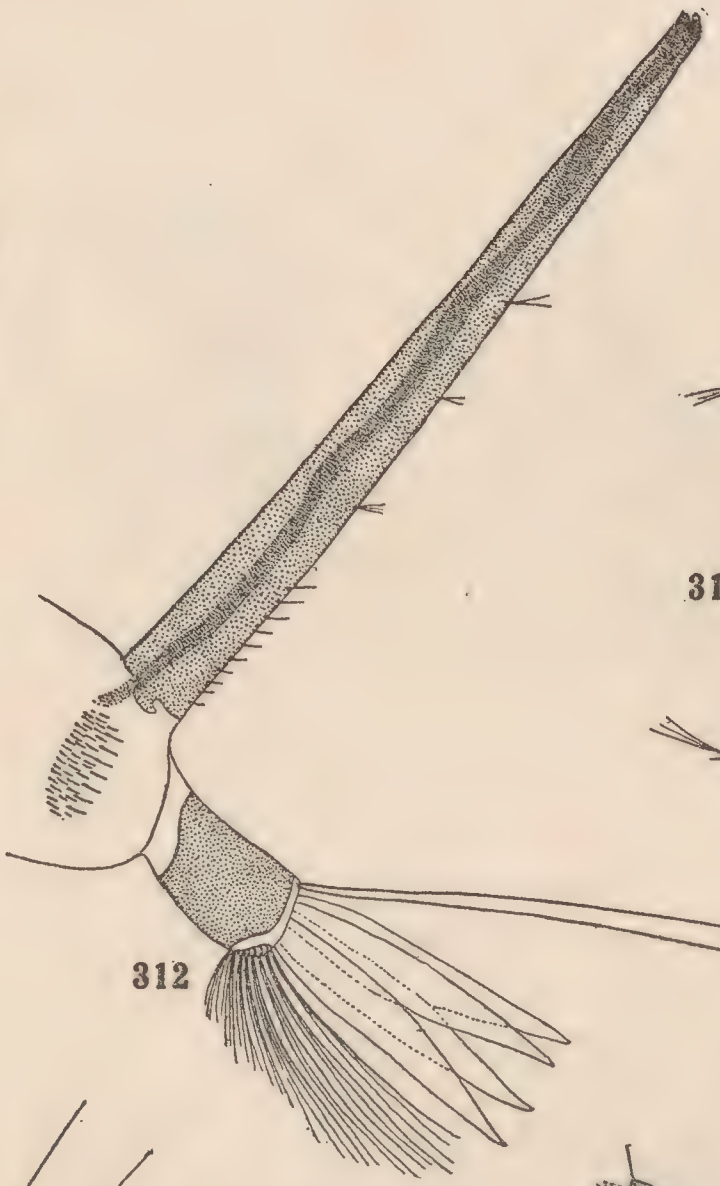
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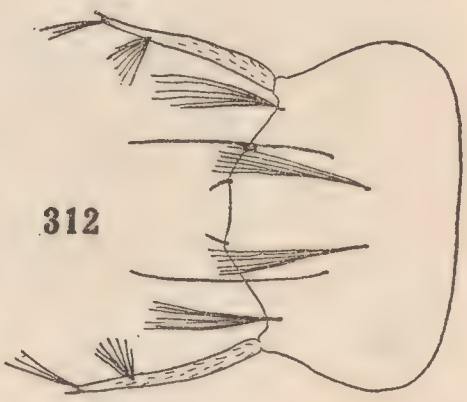
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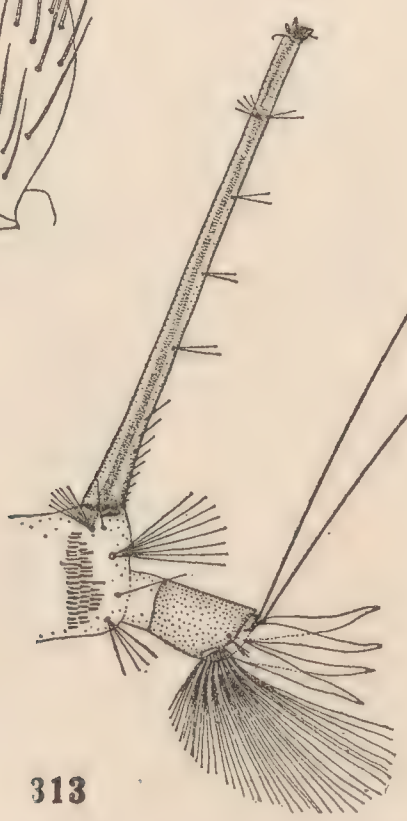
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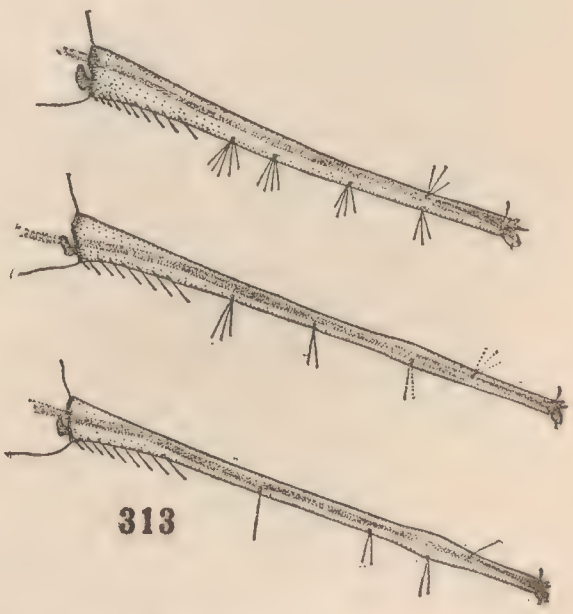
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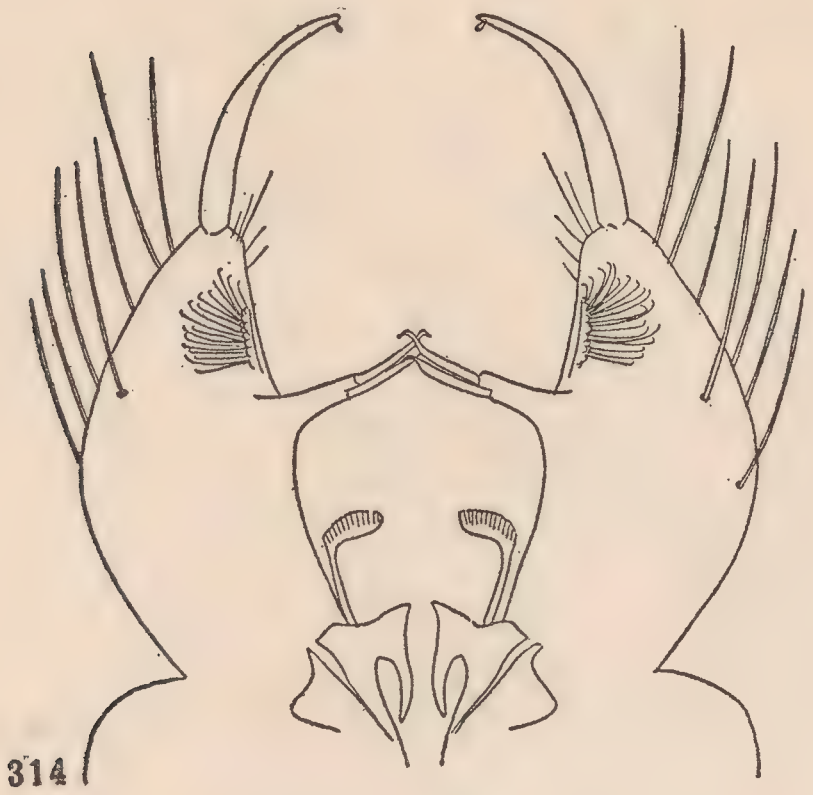
311. *Culex inimitabilis* D. and K., male hypopygium and larva
312. *Culex chryselatus* D. and K., male hypopygium and larva
313. *Culex imitator* Theob., male hypopygium and larva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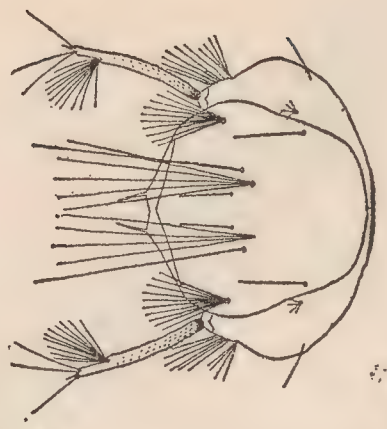
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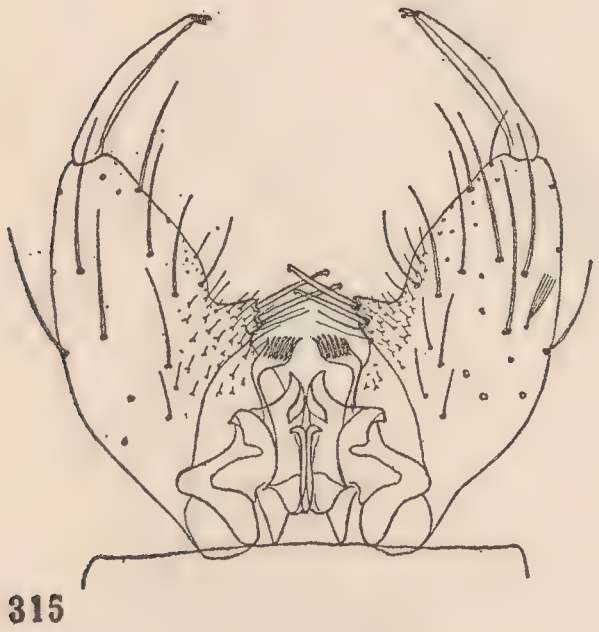
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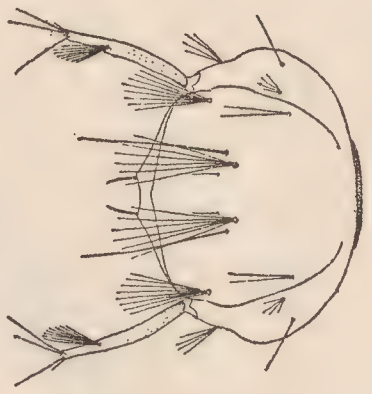
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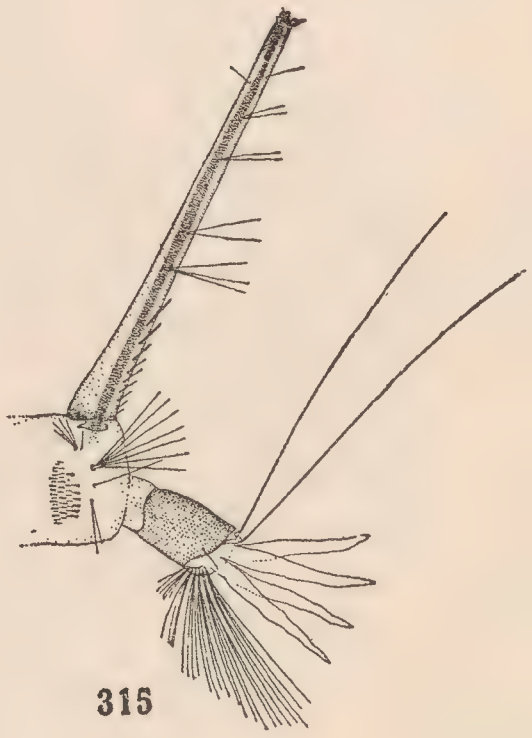
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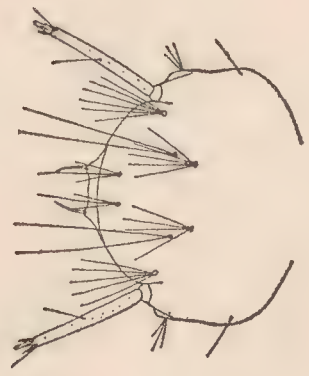
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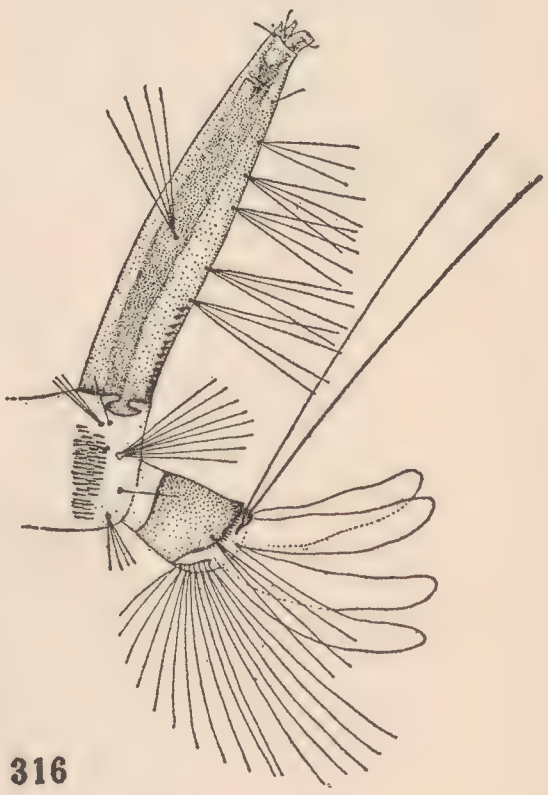
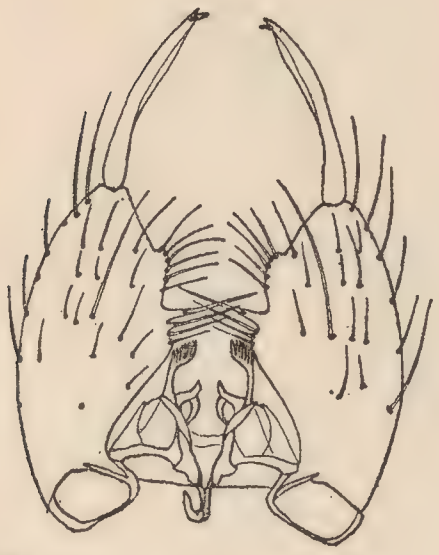

316

314. *Culex jenningsi* D. and K., male hypopygium and larva
315. *Culex rejector* D. and K., male hypopygium and larva
316. *Culex pleuristriatus* Theob., male hypopygium and larva



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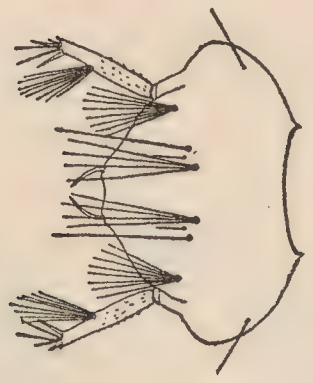

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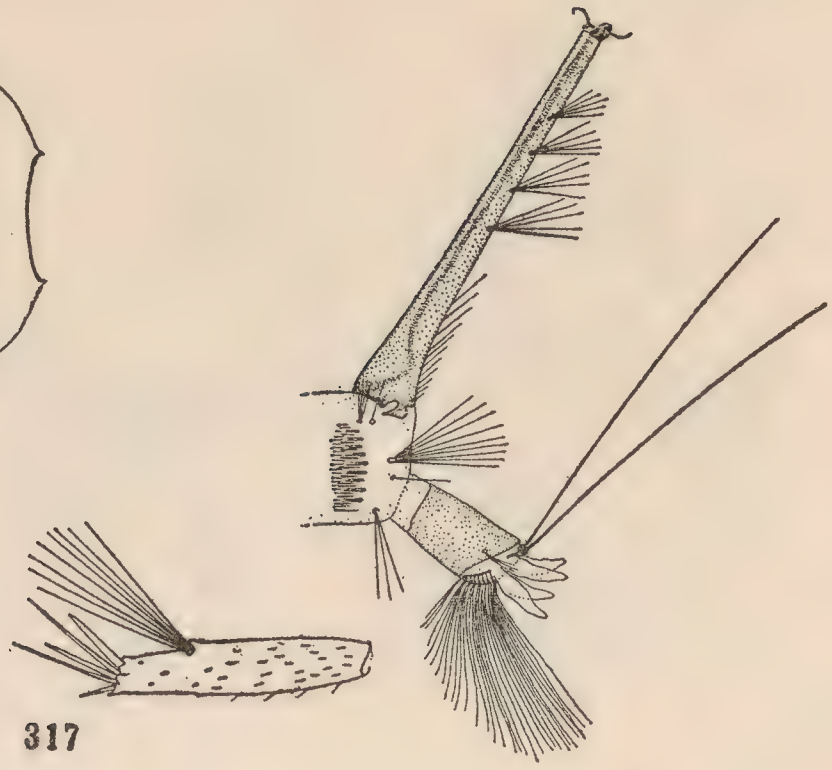

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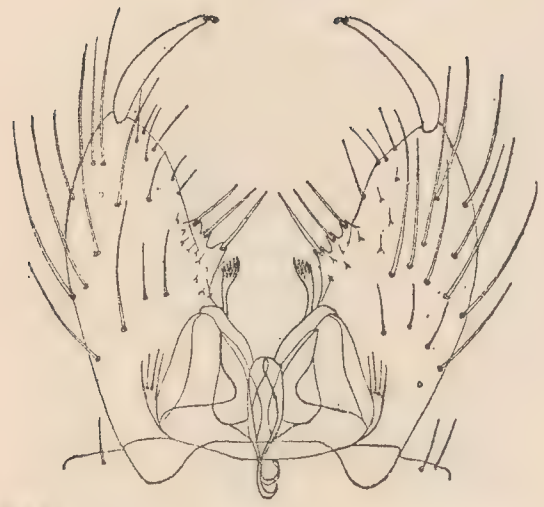

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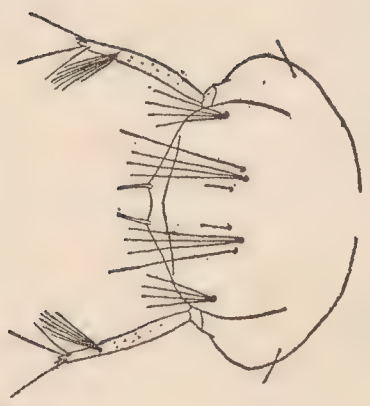

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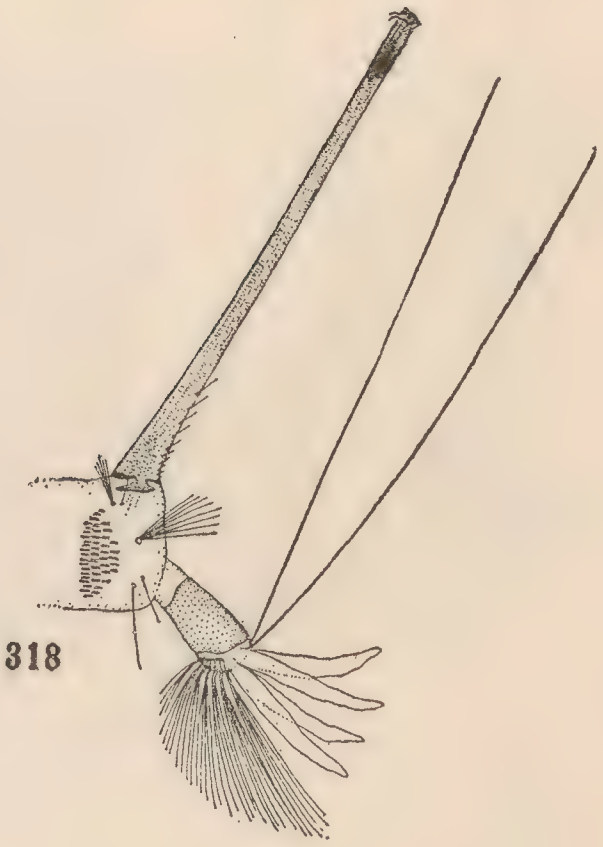

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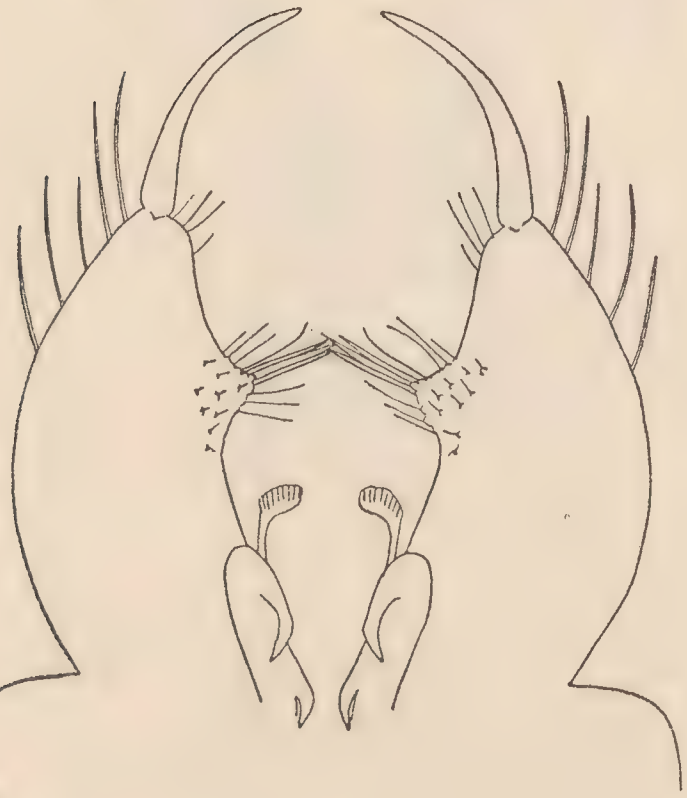

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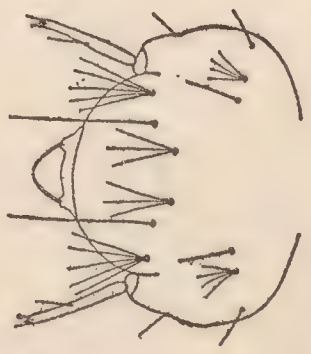

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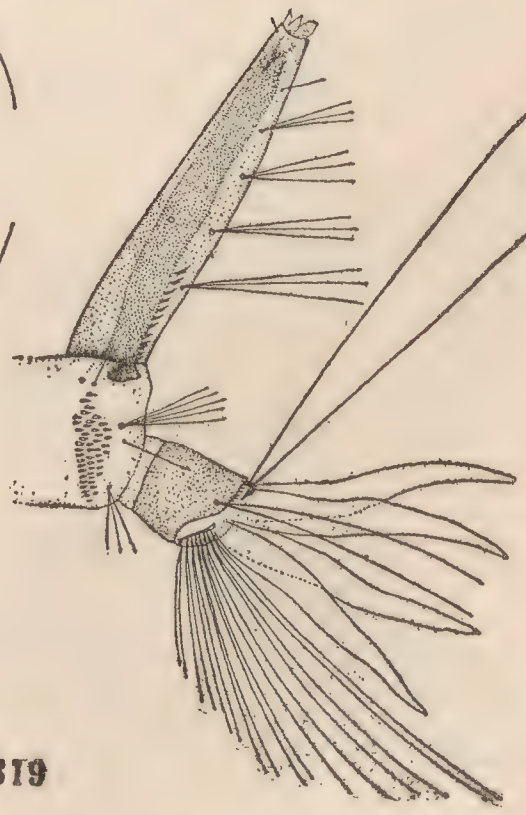
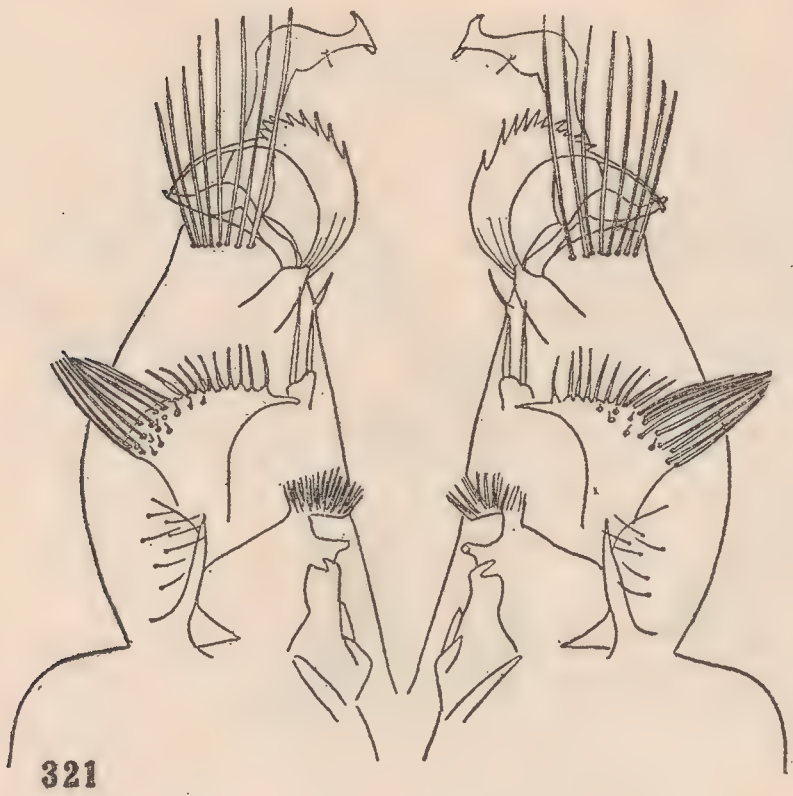
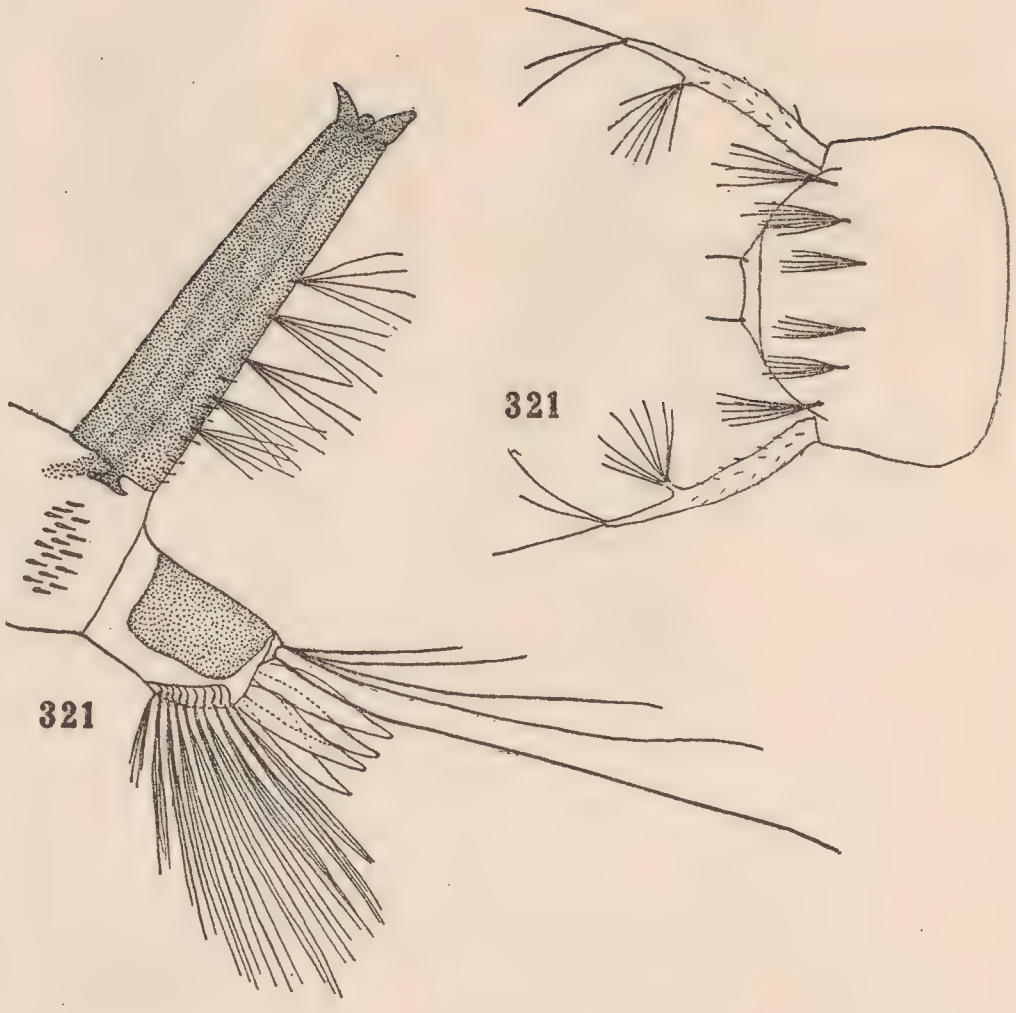
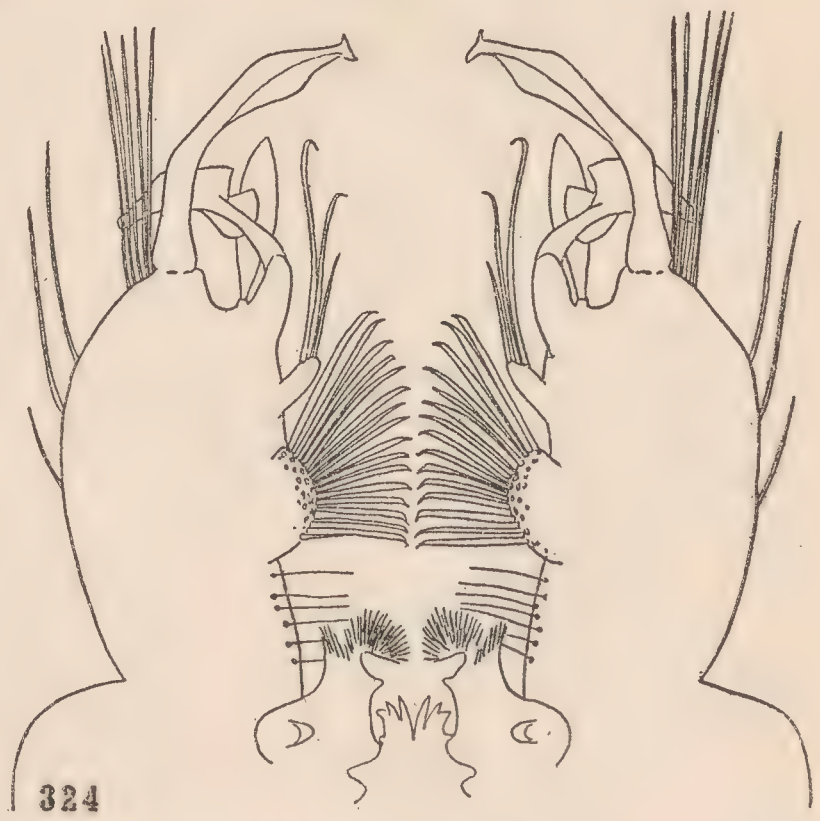


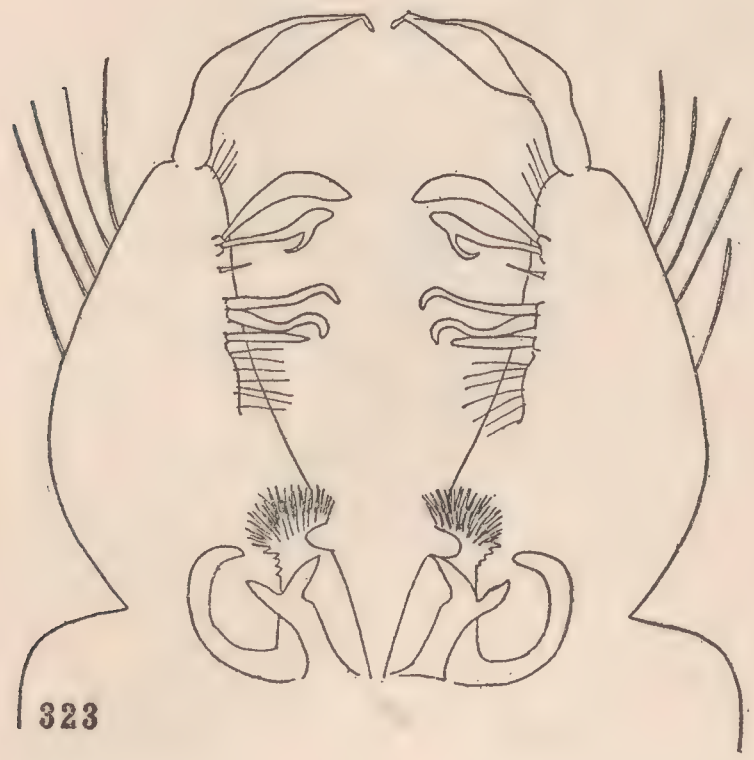
319

317. *Culex daumastocampa* D. and K., male hypopygium and larva
318. *Culex ocellatus* Theob., male hypopygium and larva
319. *Culex azymus* D. and K., larva
320. *Culex neglectus* Lutz, male hypopygium

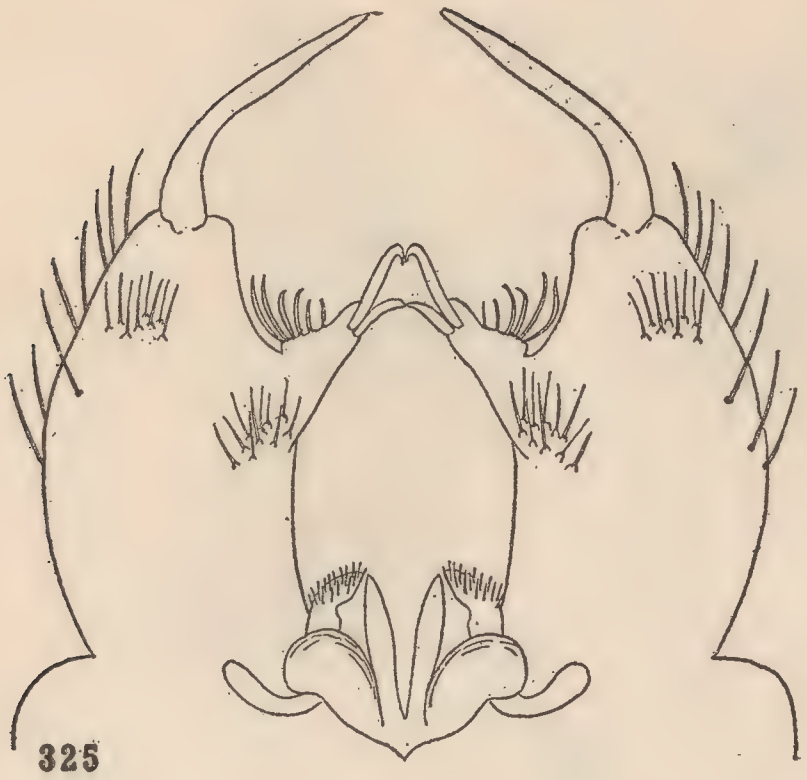








321. *Culex debilis* D. and K., male hypopygium and larva
322. *Culex escomeli* Brèthes, male hypopygium
323. *Culex articularis* Phil., male hypopygium
324. *Culex apicinus* Phil., male hypopygium



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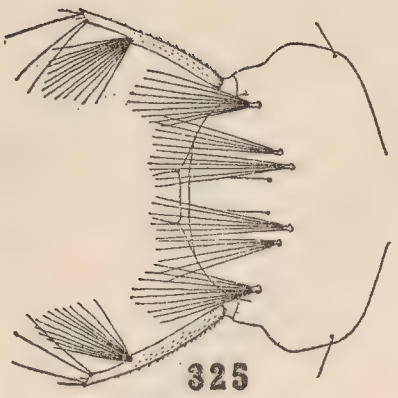

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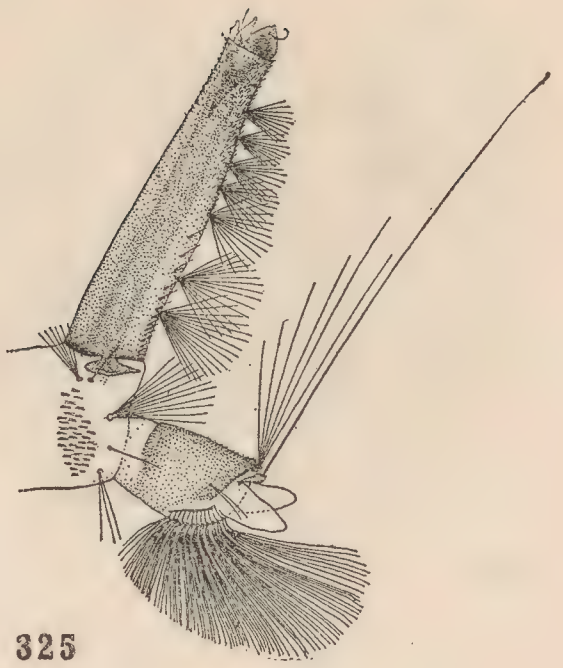

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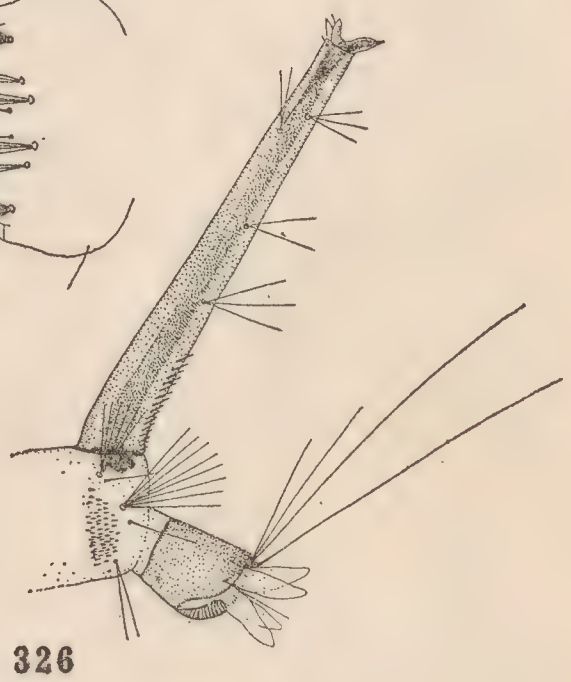

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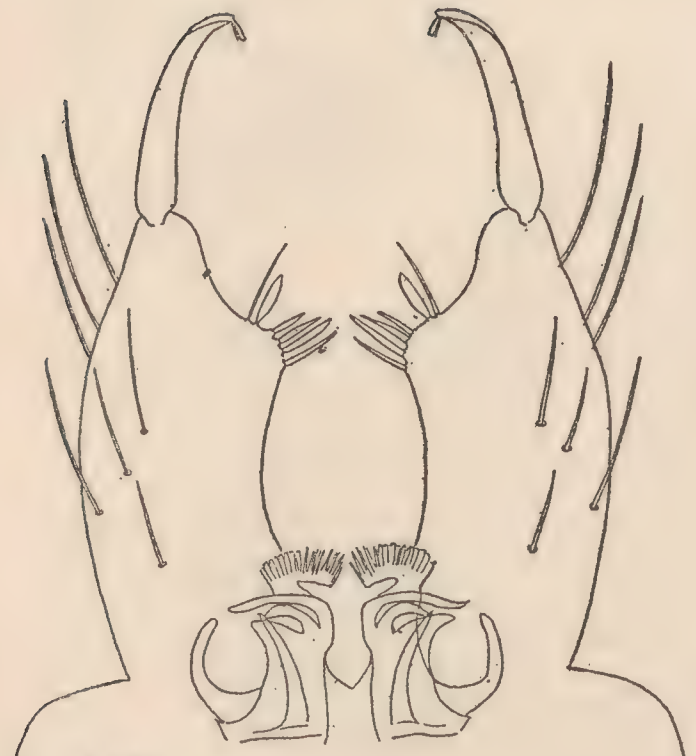

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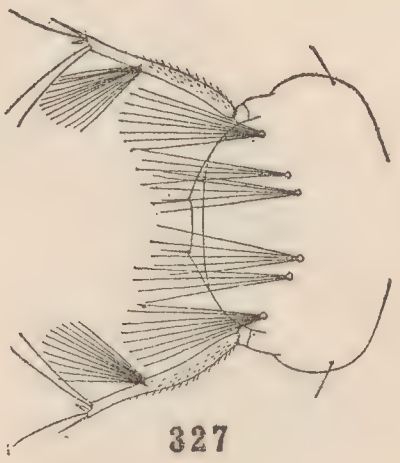

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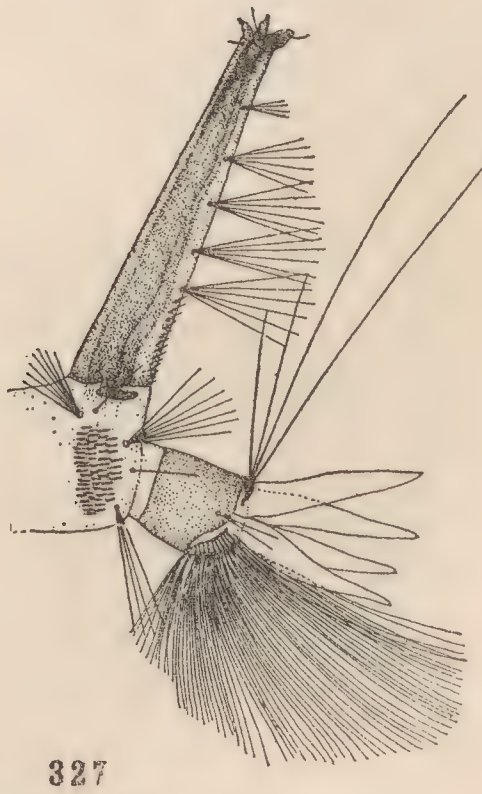
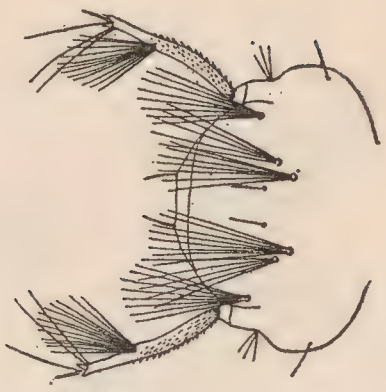


327

325. *Culex bahamensis* D. and K., male hypopygium and larva
326. *Culex habilitator* D. and K., male hypopygium and larva
327. *Culex tarsalis* Coq., male hypopygium and larva

328



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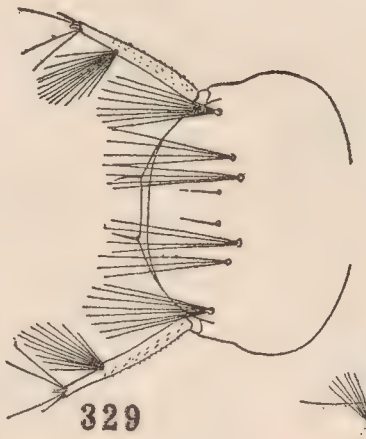

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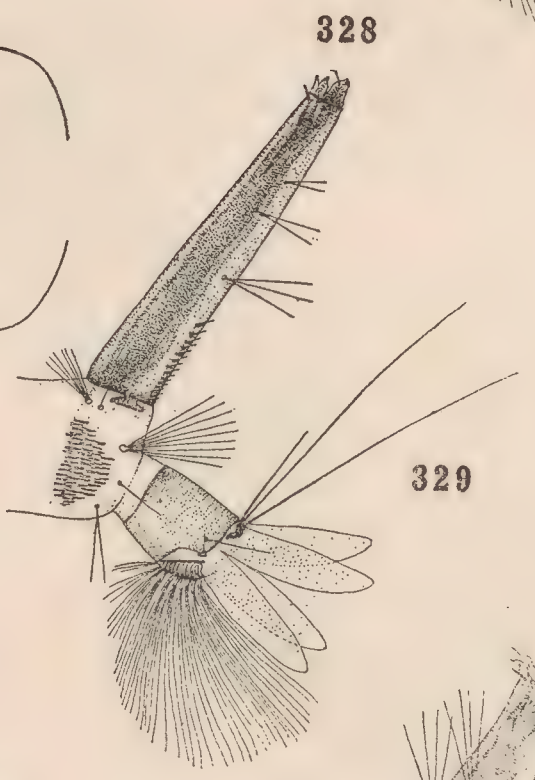

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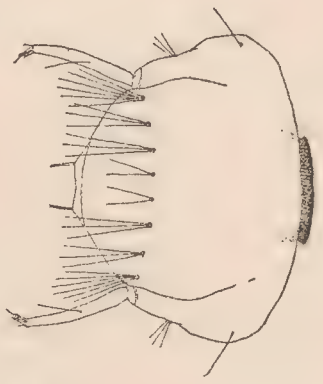

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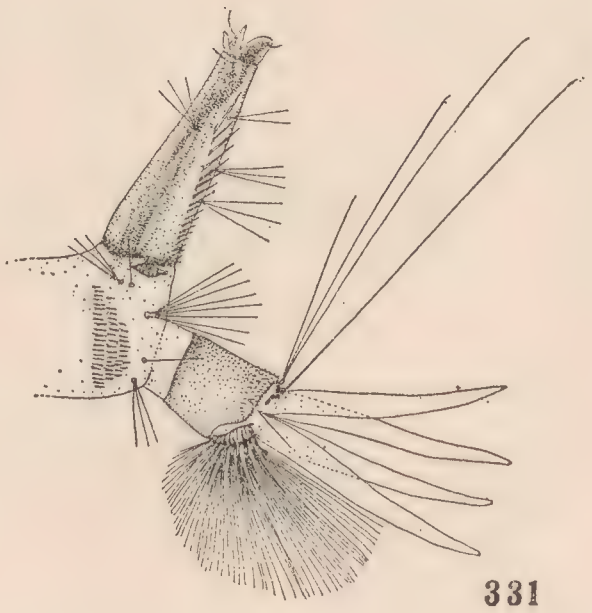

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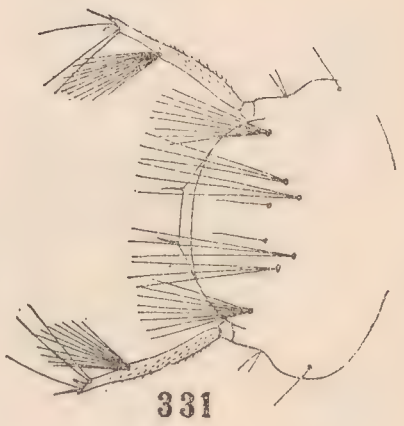
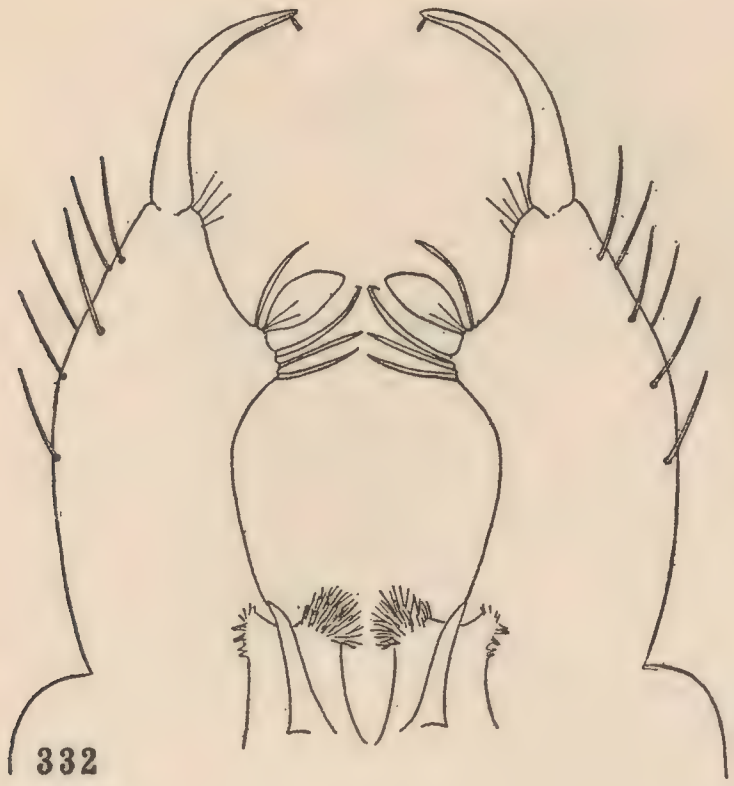


331

328. *Culex stigmatosoma* Dyar, male hypopygium and larva
329. *Culex inflictus* Theob., male hypopygium and larva
330. *Culex corniger* Theob., male hypopygium and larva
331. *Culex interrogator* D. and K., male hypopygium and larva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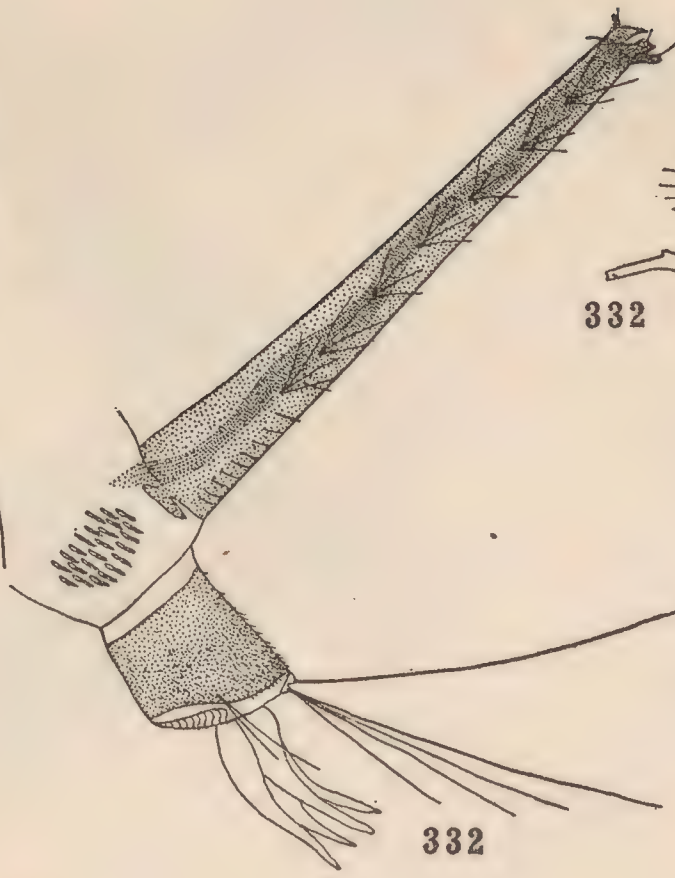
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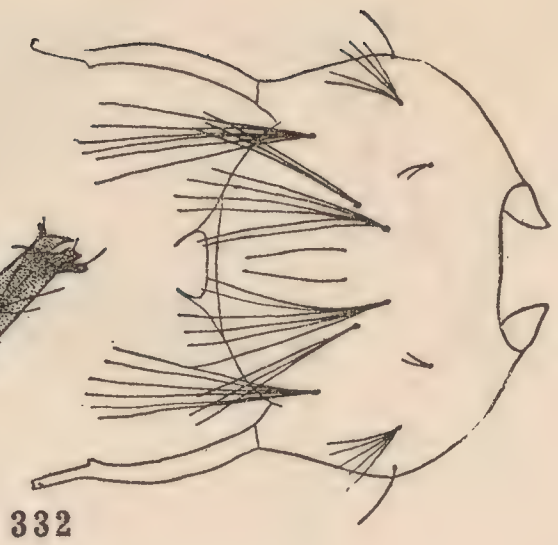
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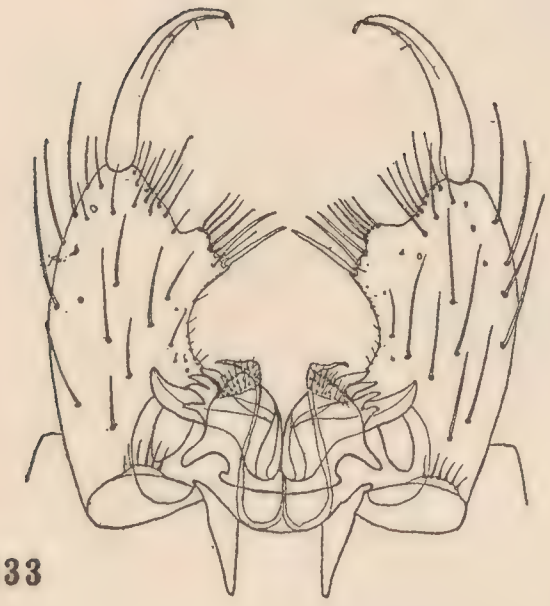
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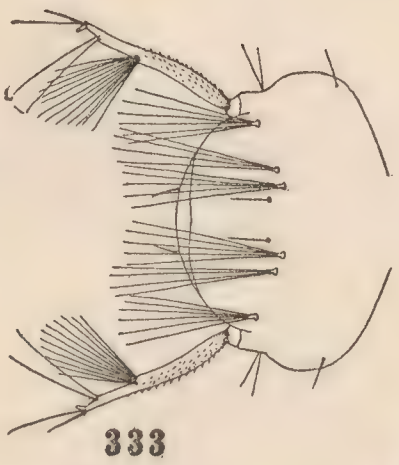
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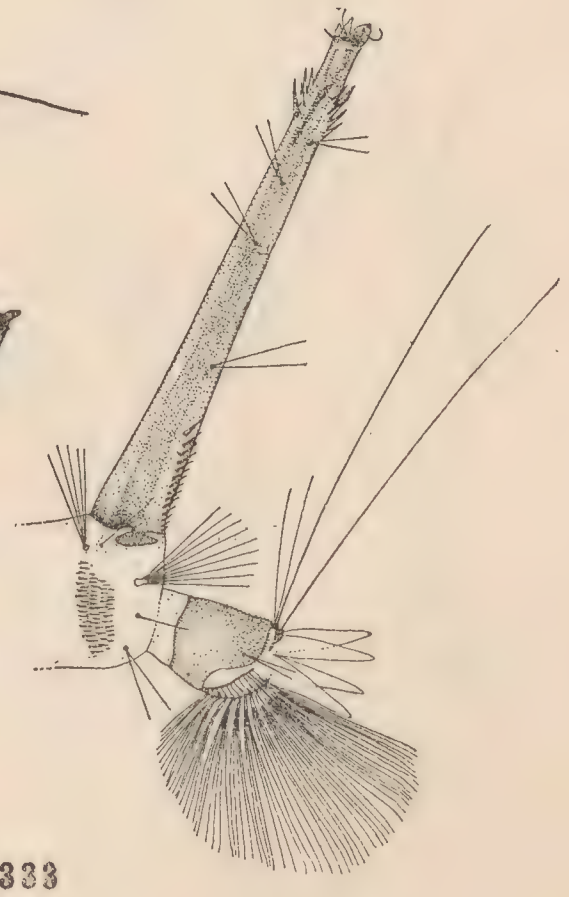
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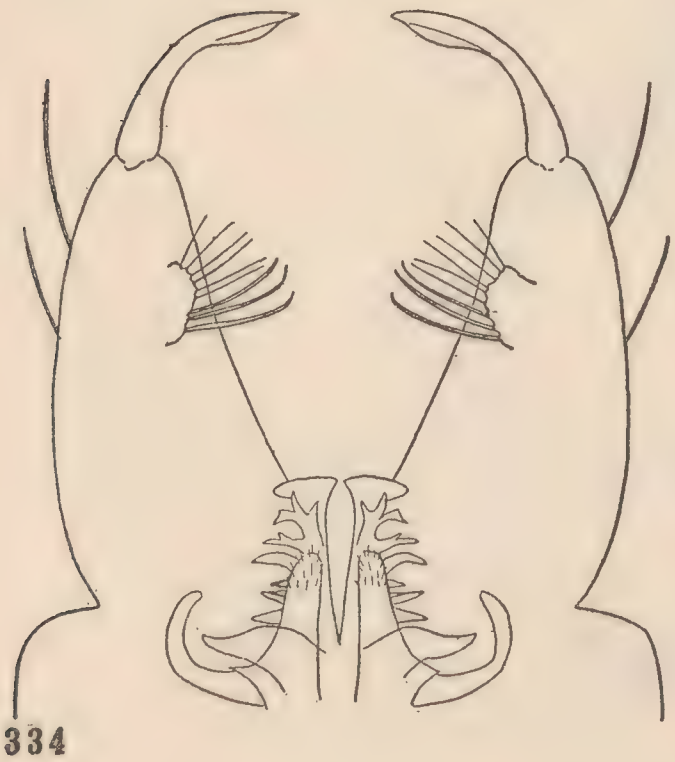
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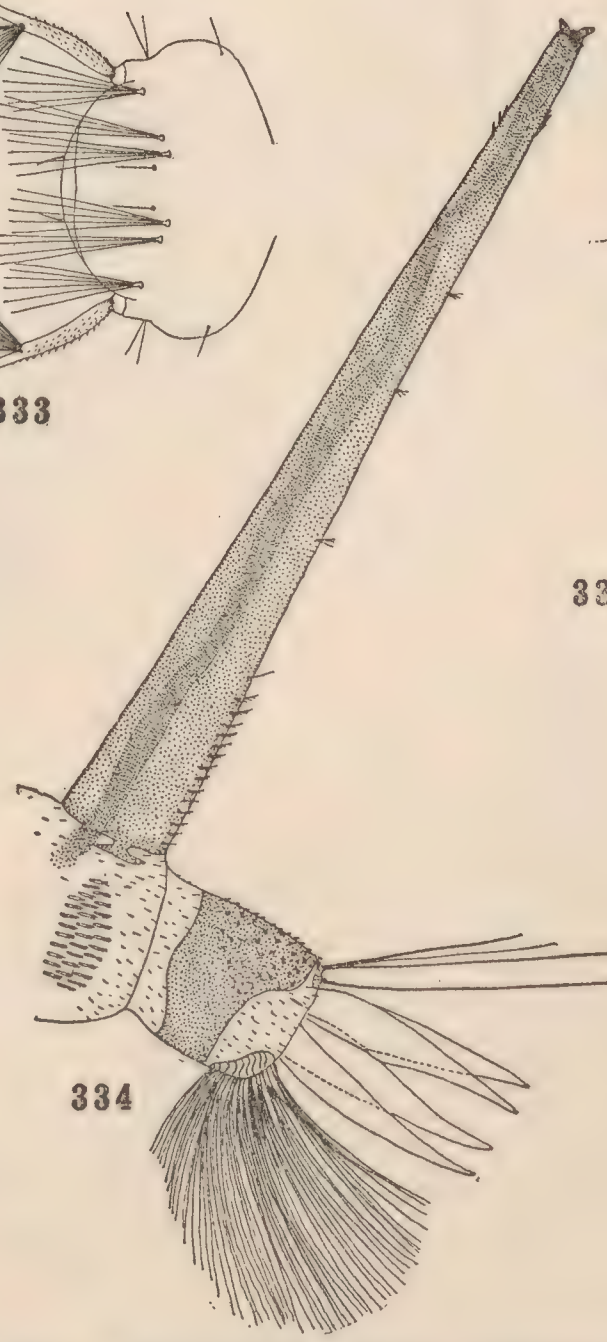
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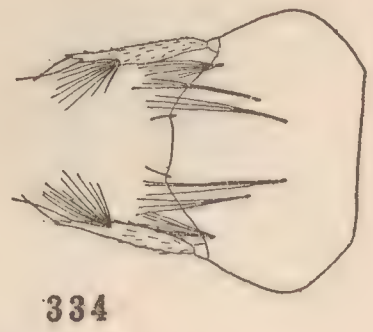
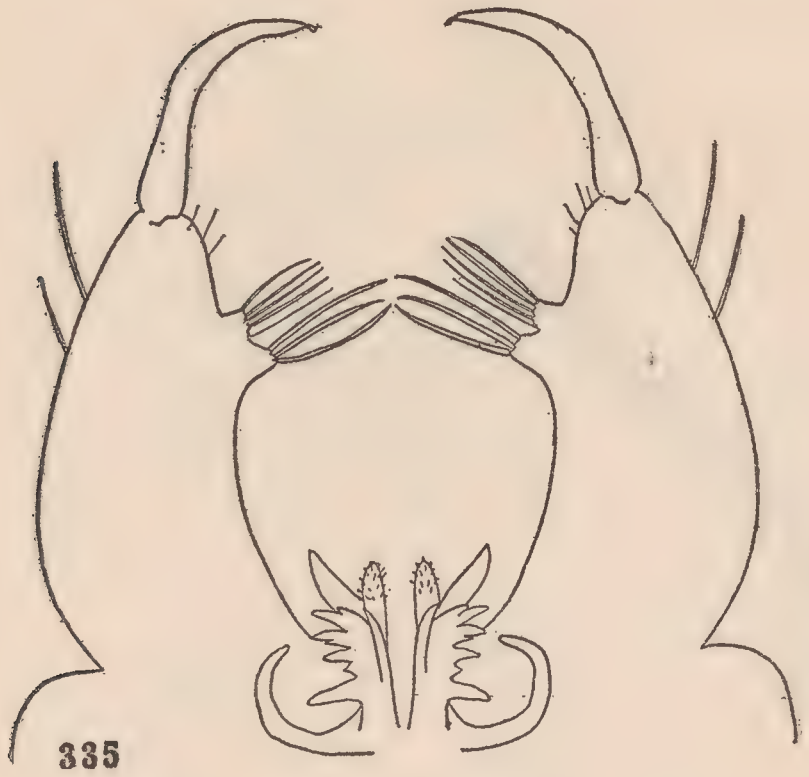

334

332. *Culex chidesteri* Dyar, male hypopygium and larva
333. *Culex coronator* D. and K., male hypopygium and larva
334. *Culex brevispinosus* B.-W. and B., male hypopygium and larva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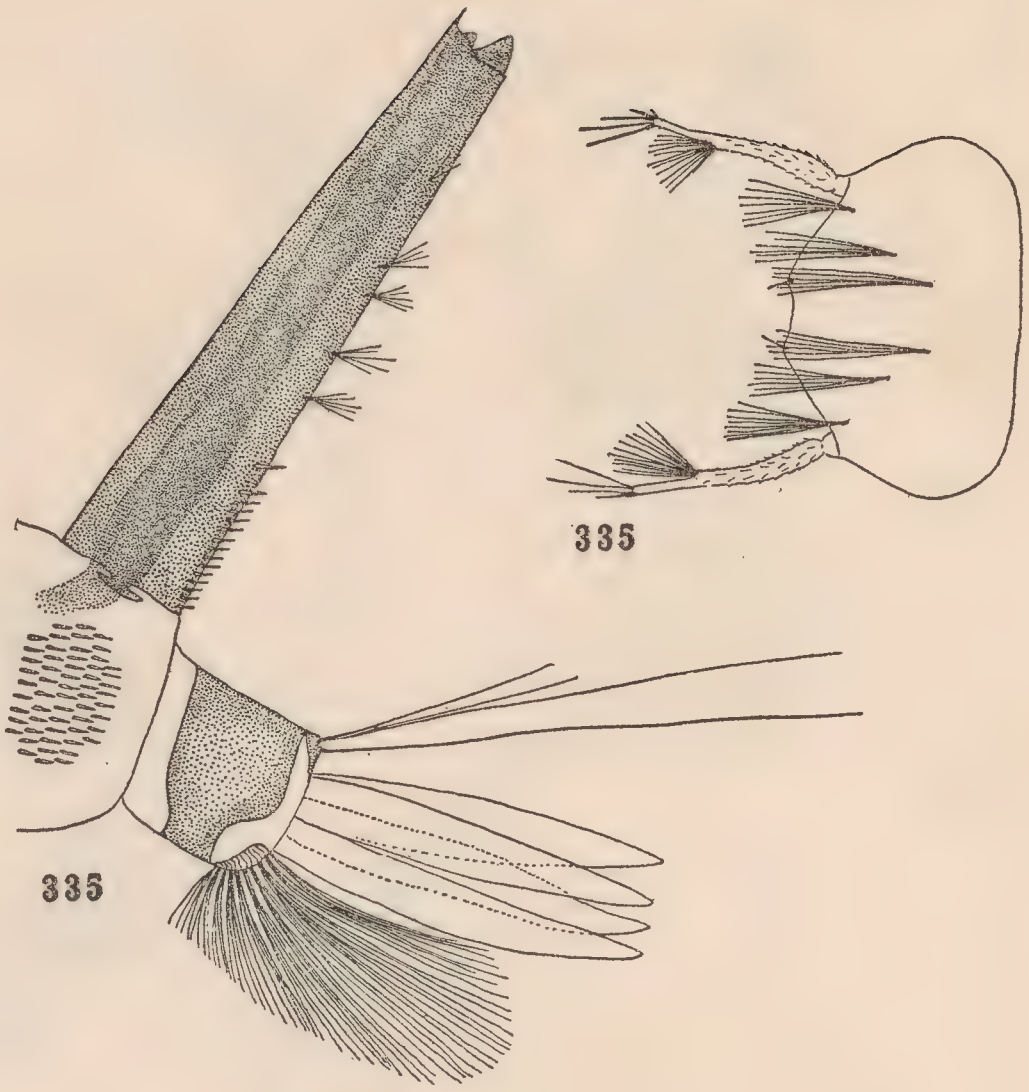
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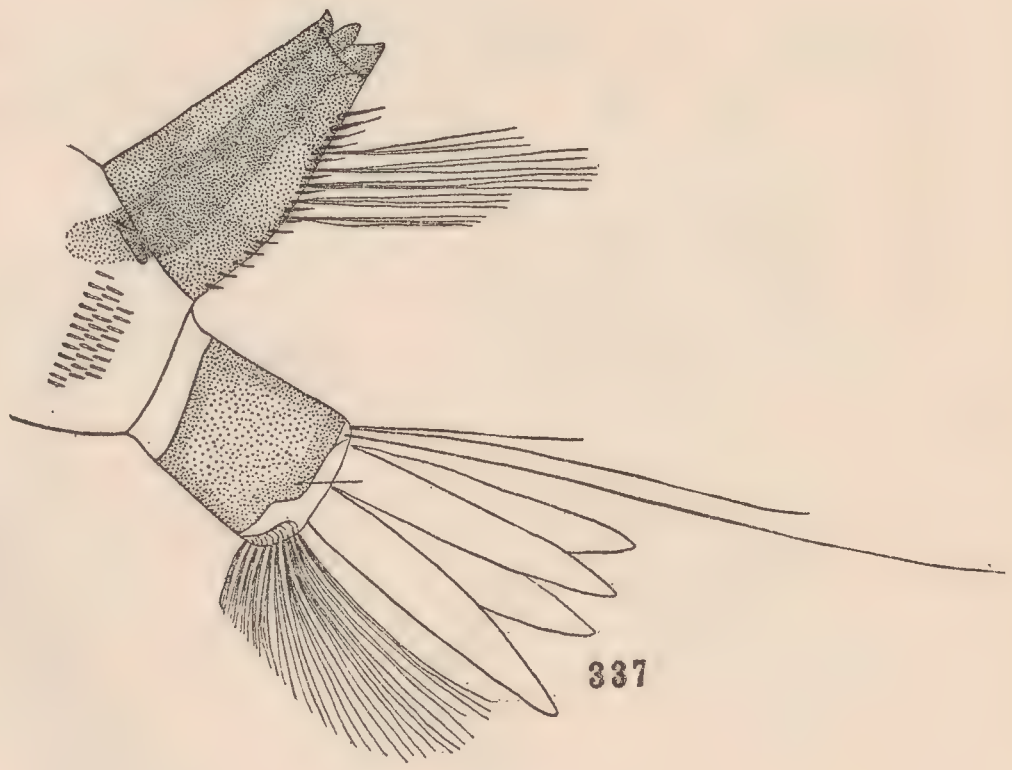
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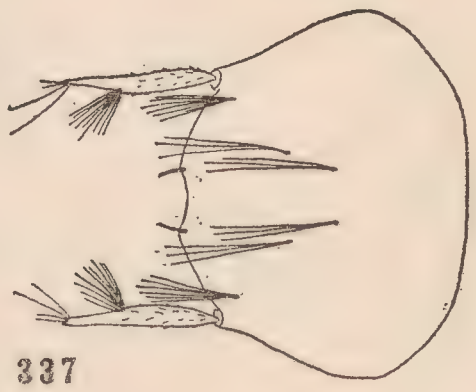
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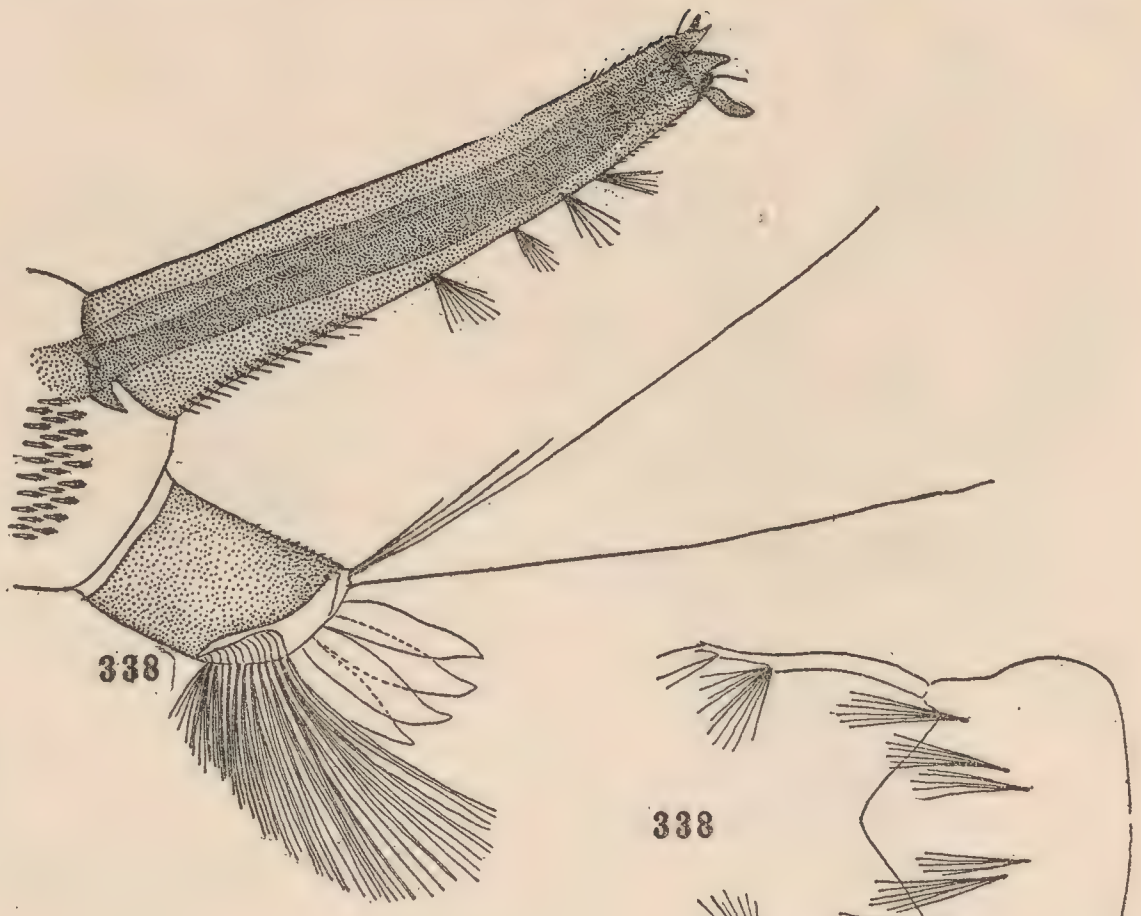
335. *Culex surinamensis* Dyar, male hypopygium and larva
336. *Culex duplicator* D. and K., male hypopygium
337. *Culex bonneæ* D. and K., male hypopygium and larva

338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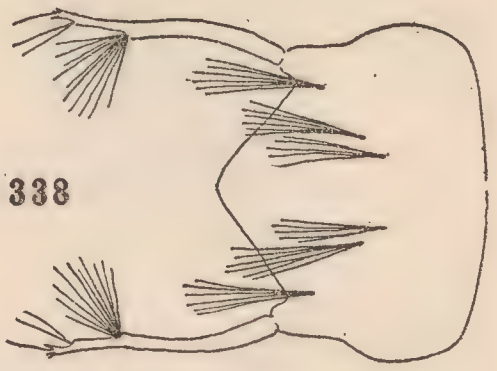
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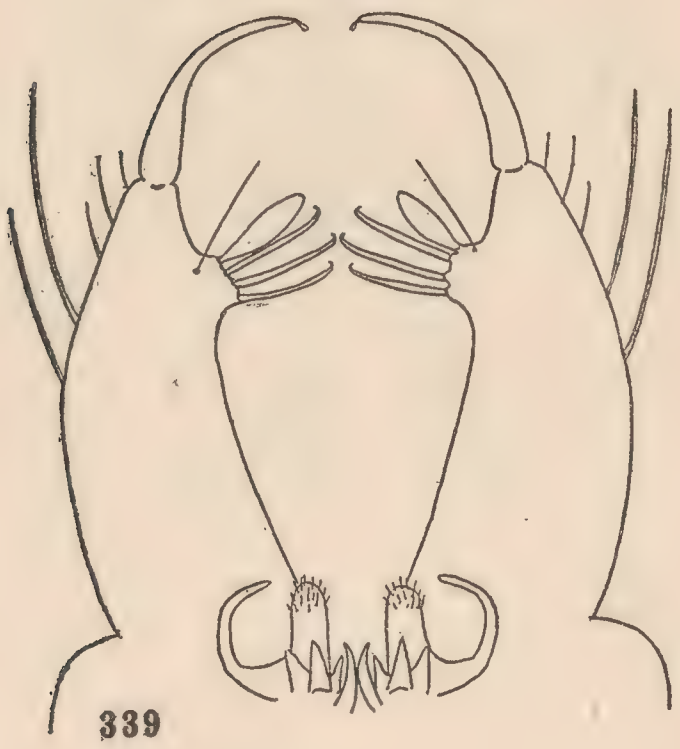
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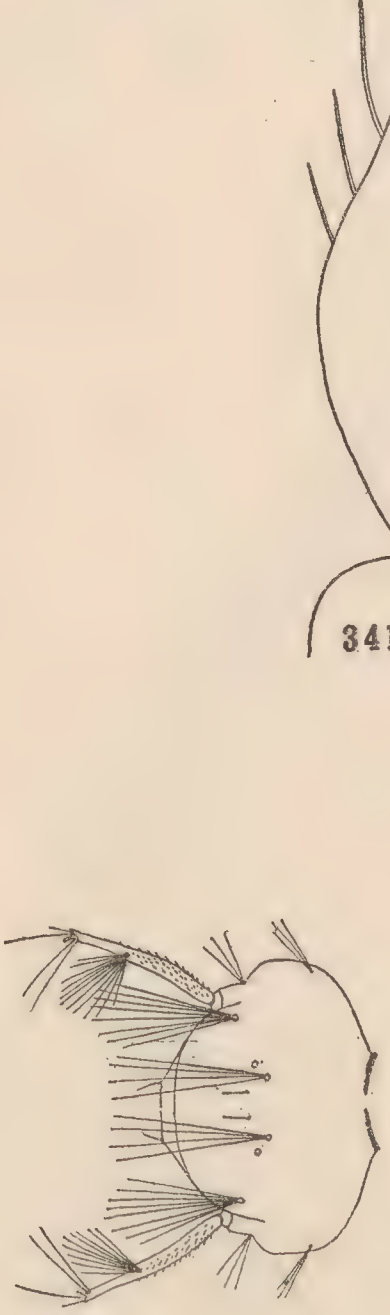
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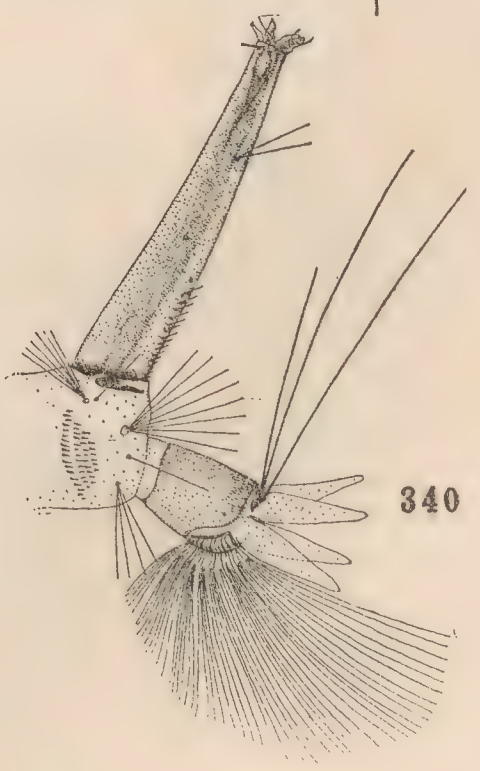
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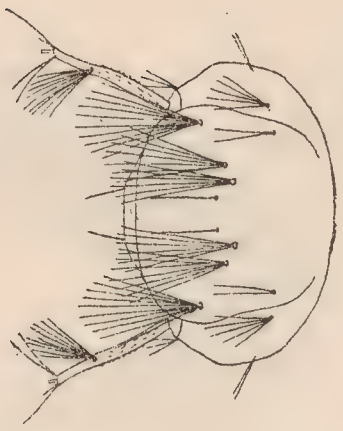
338. *Culex maracayensis* Evans, male hypopygium and larva
339. *Culex virgultus* Theob., male hypopygium
340. *Culex declarator* D. and K., male hypopygium and larva
341. *Culex bidens* Dyar, male hypopygium

342



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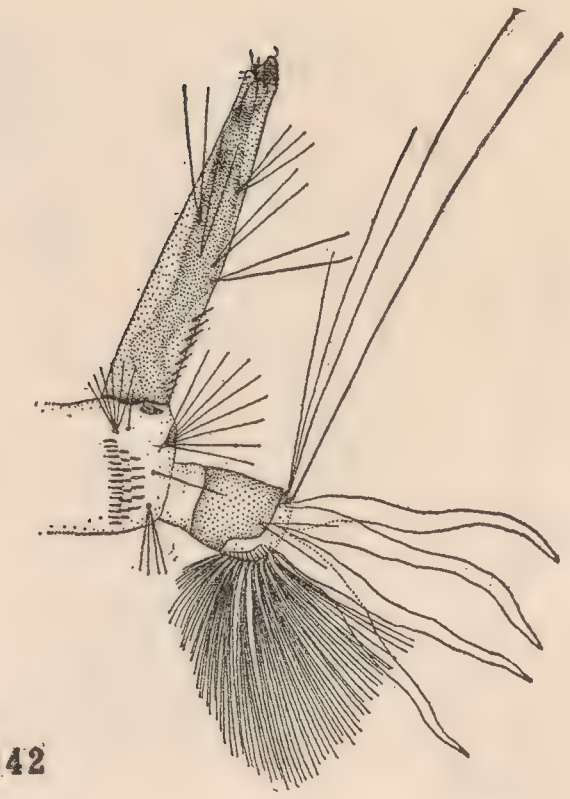

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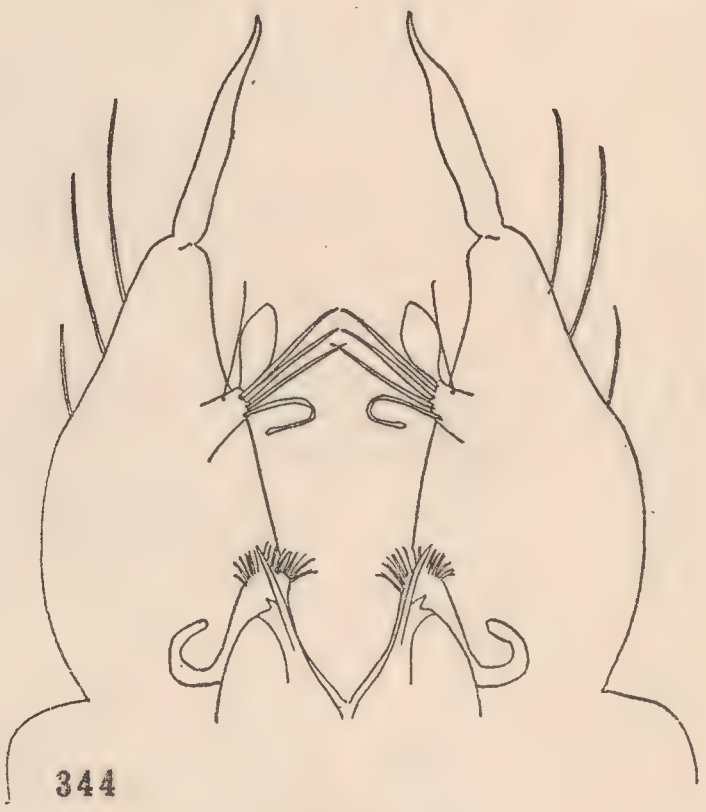

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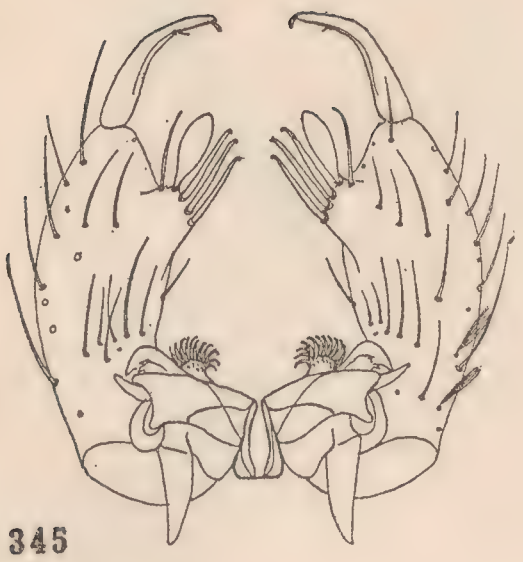

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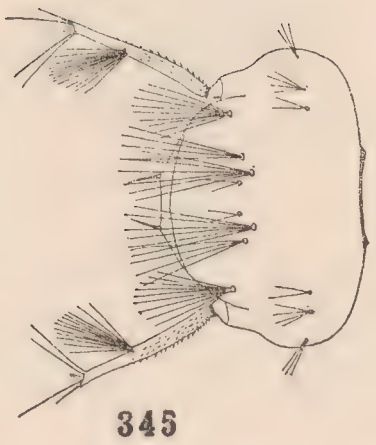

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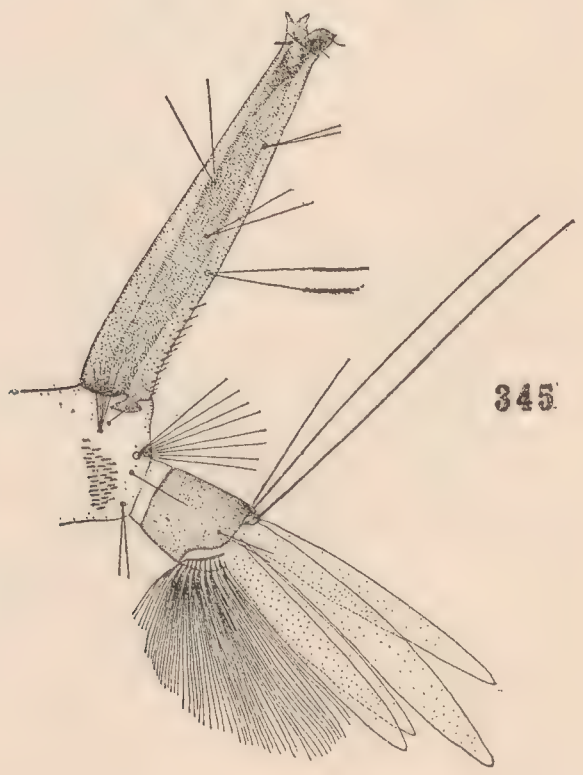
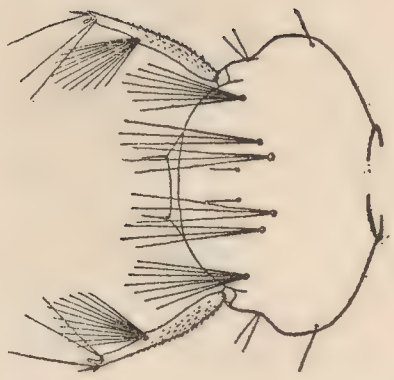


345

342. *Culex stenolepis* D. and K., male hypopygium and larva
343. *Culex lepostenis* Dyar, male hypopygium
344. *Culex acharistus* Root, male hypopygium
345. *Culex pinarocampa* D. and K., male hypopygium and larva

346



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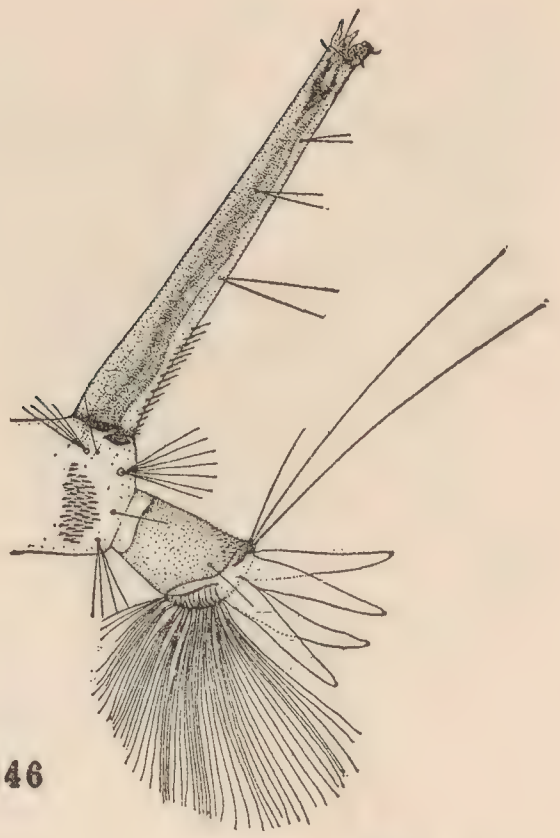

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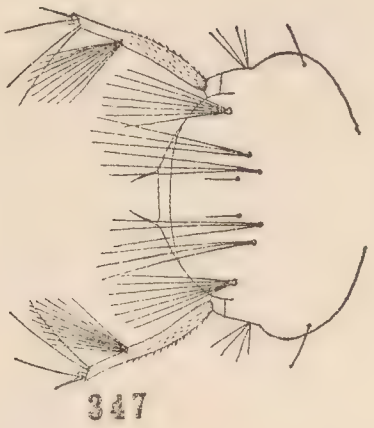

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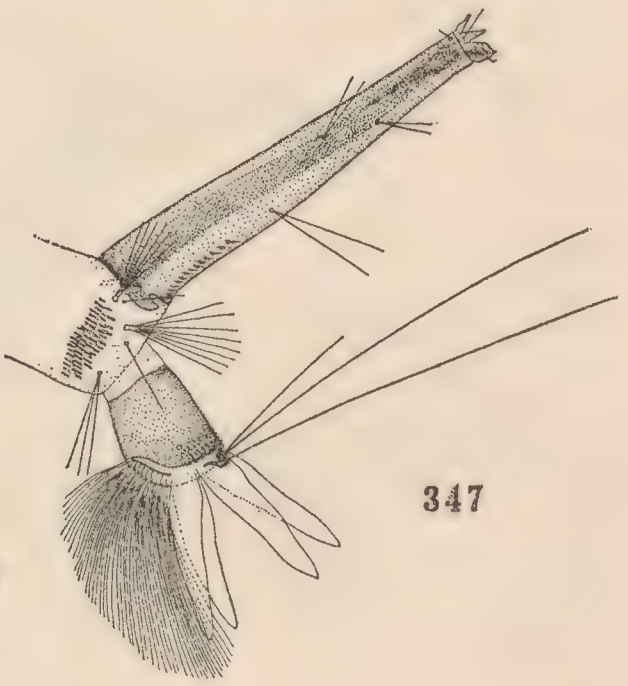

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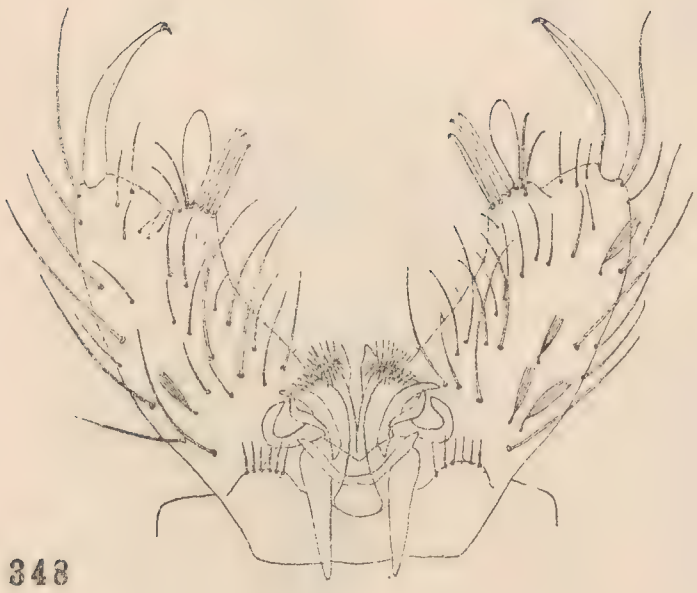

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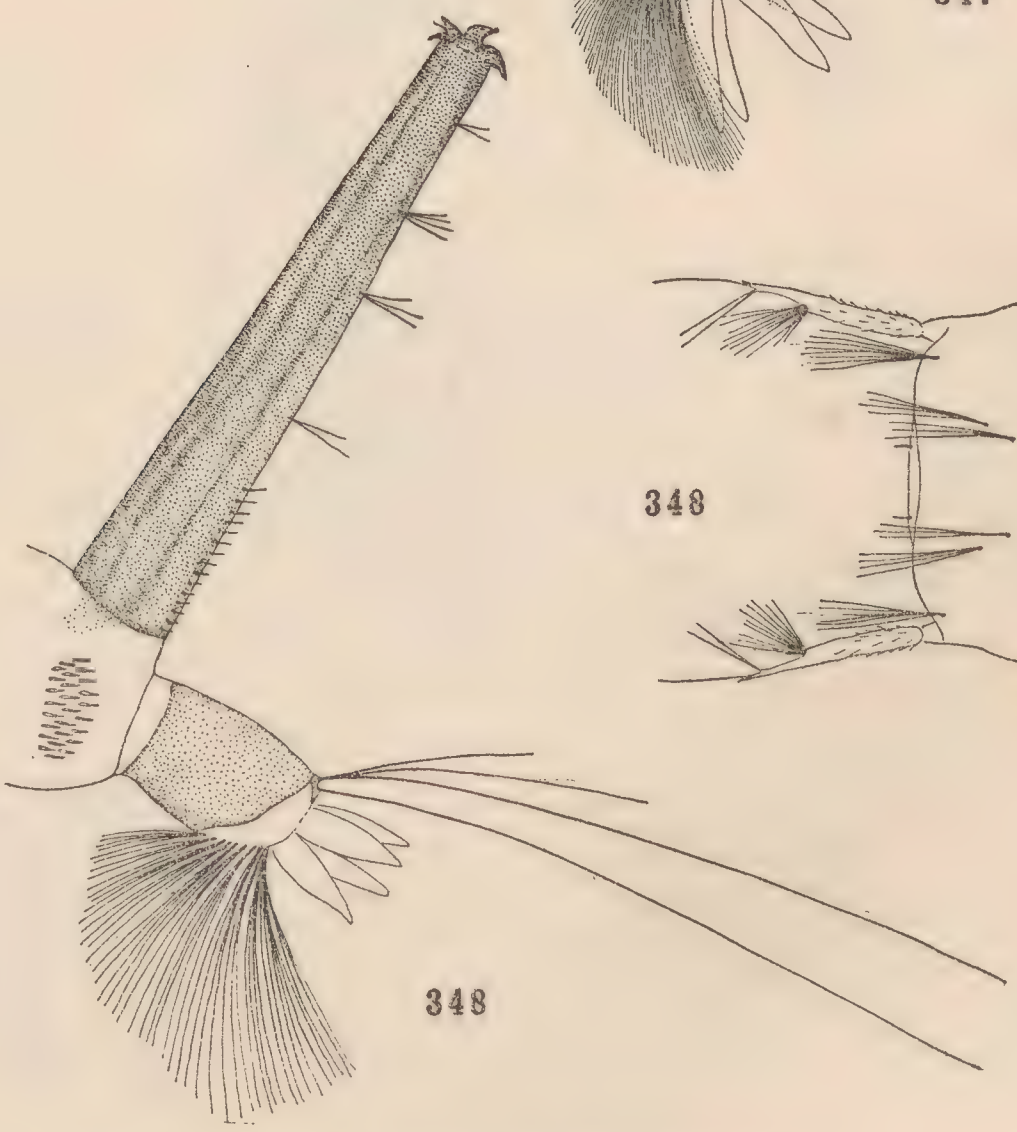

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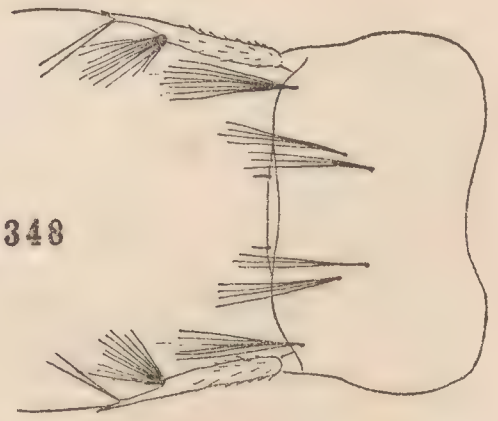
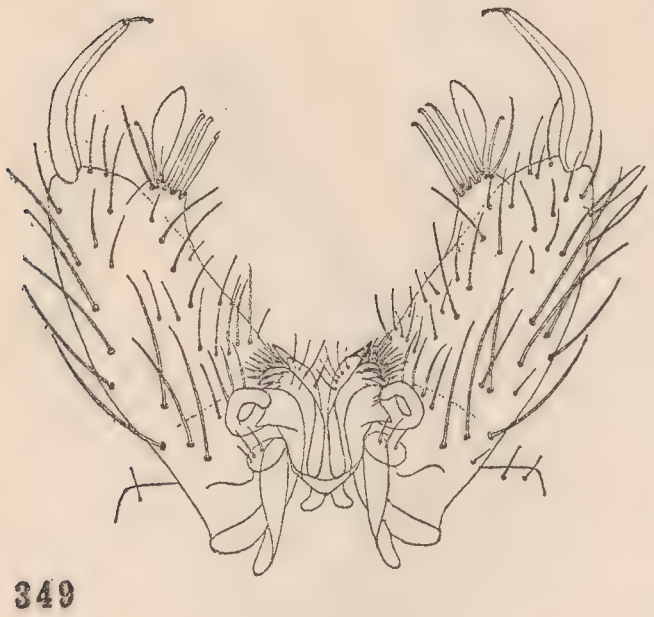


348

346. *Culex nigripalpus* Theob., male hypopygium and larva
347. *Culex mollis* D. and K., male hypopygium and larva
348. *Culex salinarius* Coq., male hypopygium and larva



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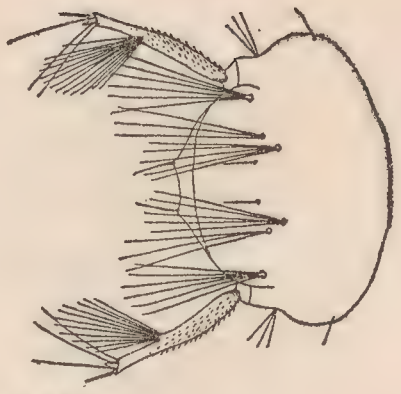

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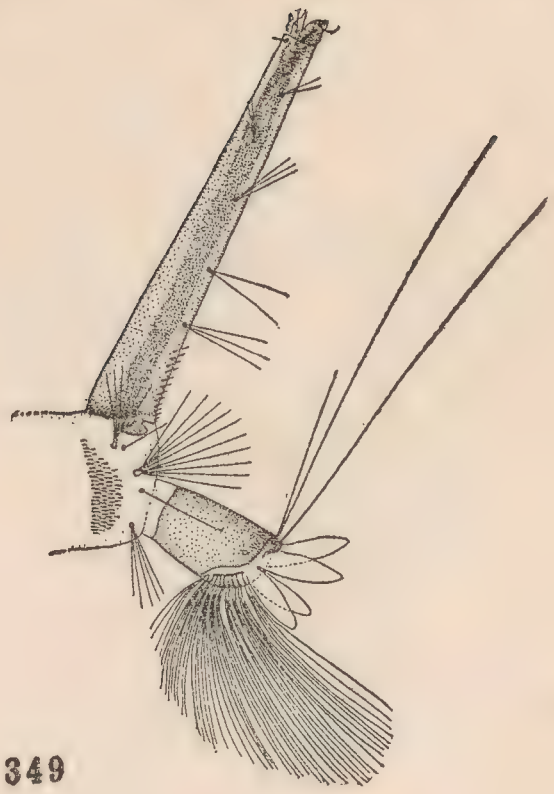

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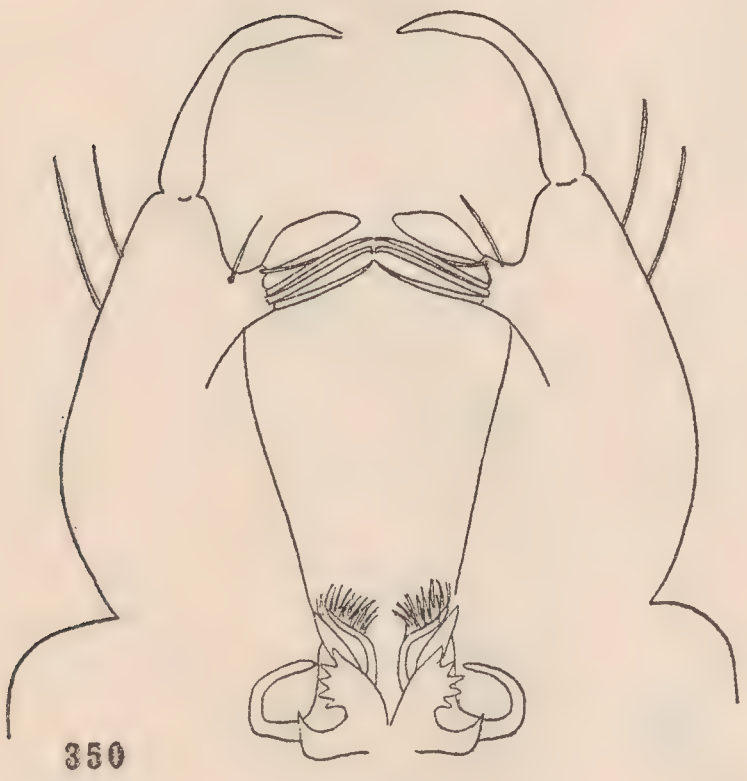

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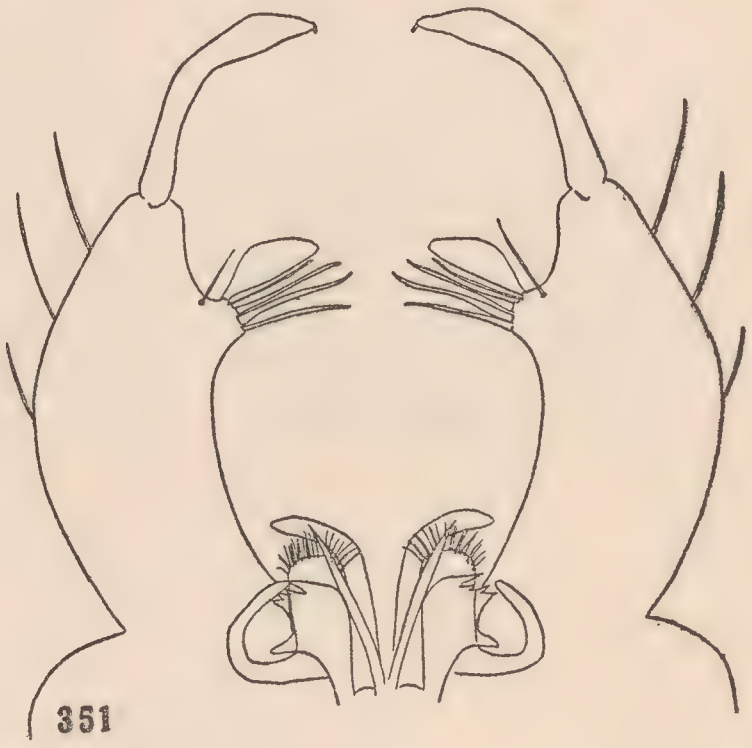

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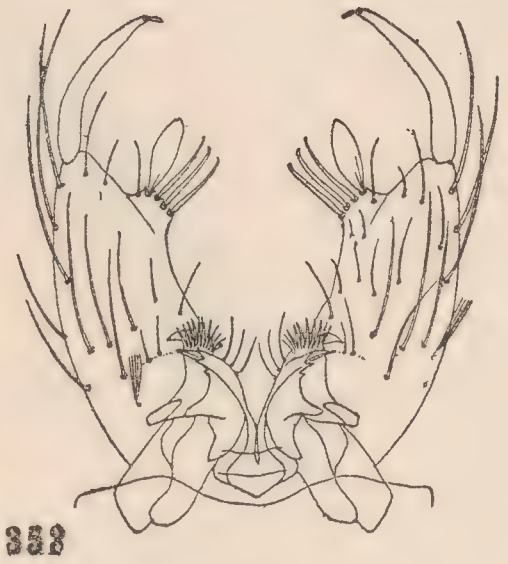

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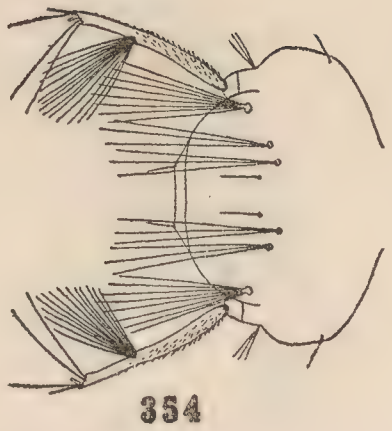
353

349. *Culex erythrothorax* Dyar, male hypopygium and larva
350. *Culex dolosus* Lynch A., male hypopygium
351. *Culex lygrus* Root., male hypopygium
352. *Culex federalis* Dyar, male hypopygium
353. *Culex janitor* Theob., male hypopygium and larva

354



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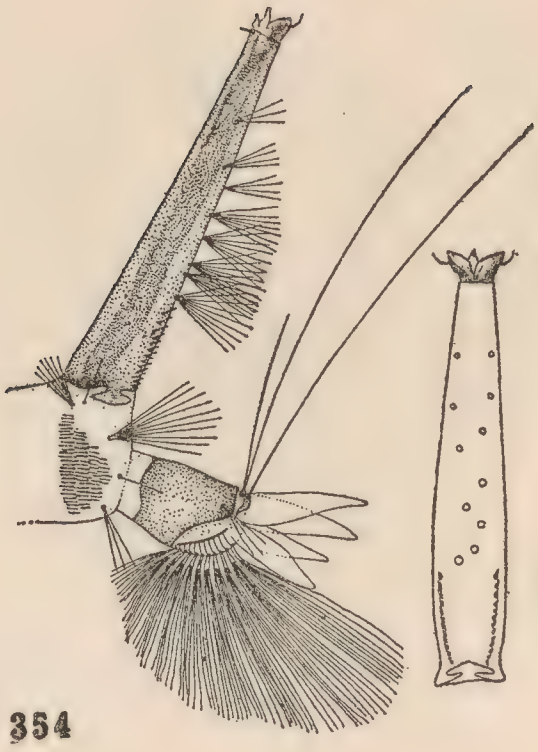

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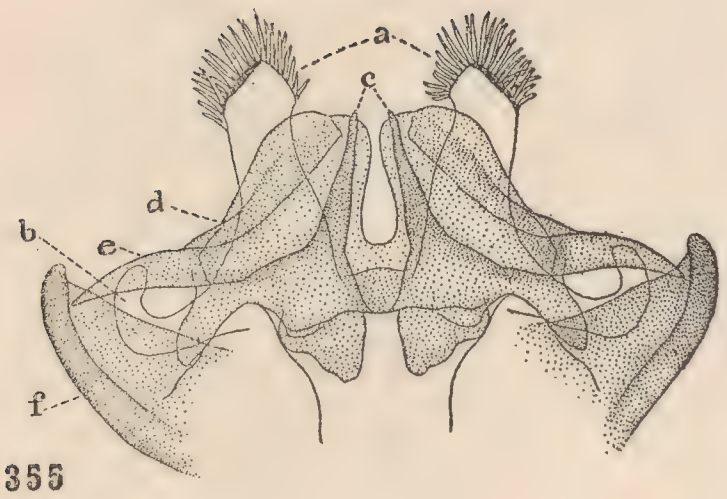

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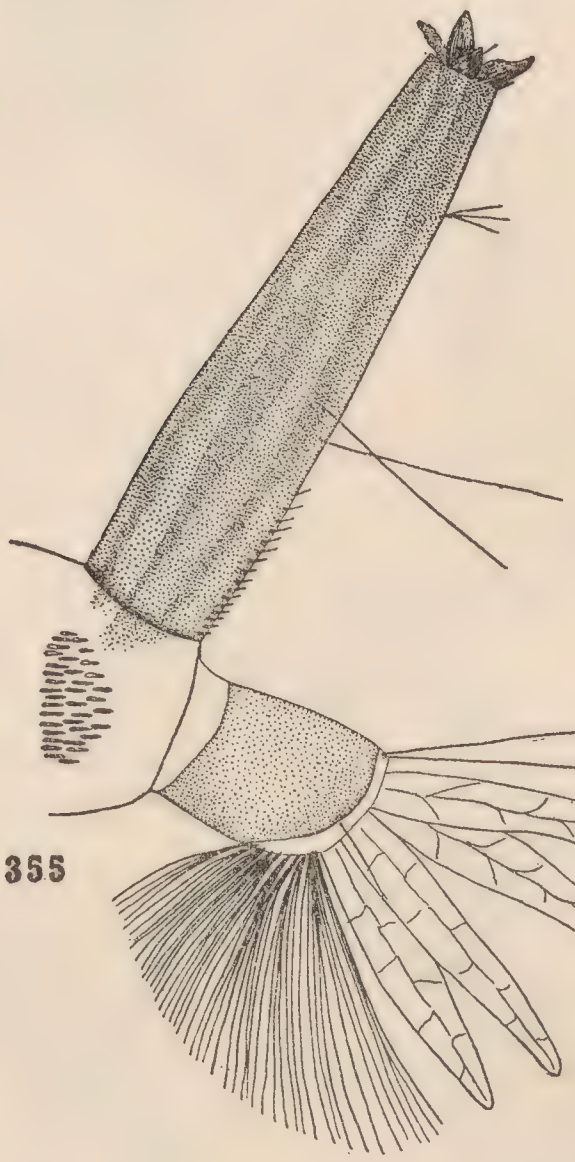

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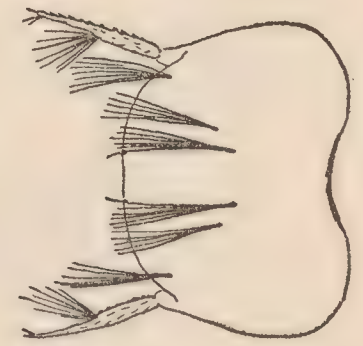

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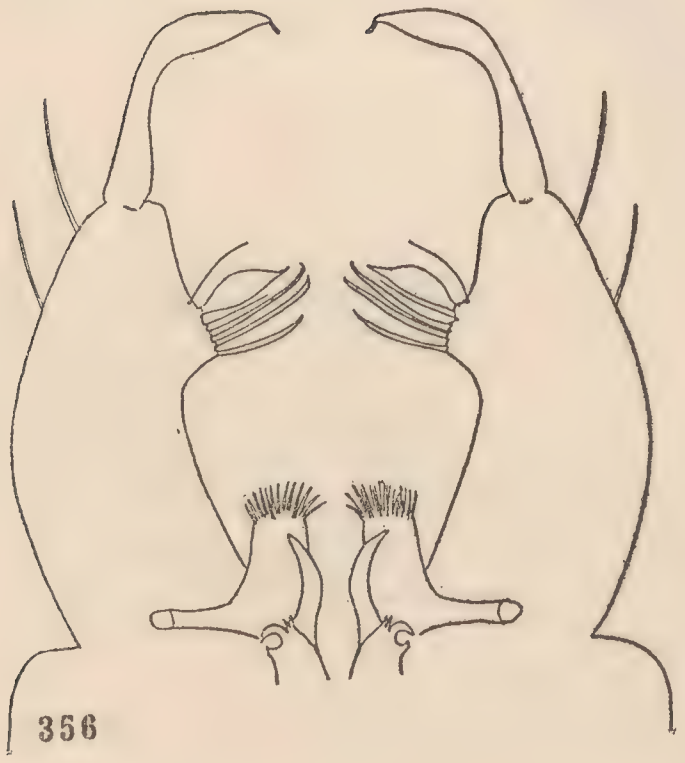

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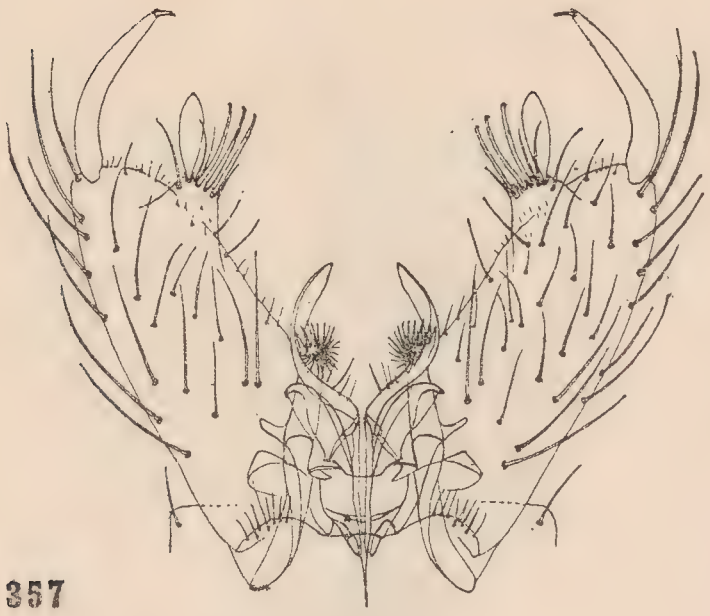
354. *Culex secutor* Theob., male hypopygium and larva
355. *Culex territans* Theob., male hypopygium and larva
356. *Culex brethesi* Dyar, male hypopygium



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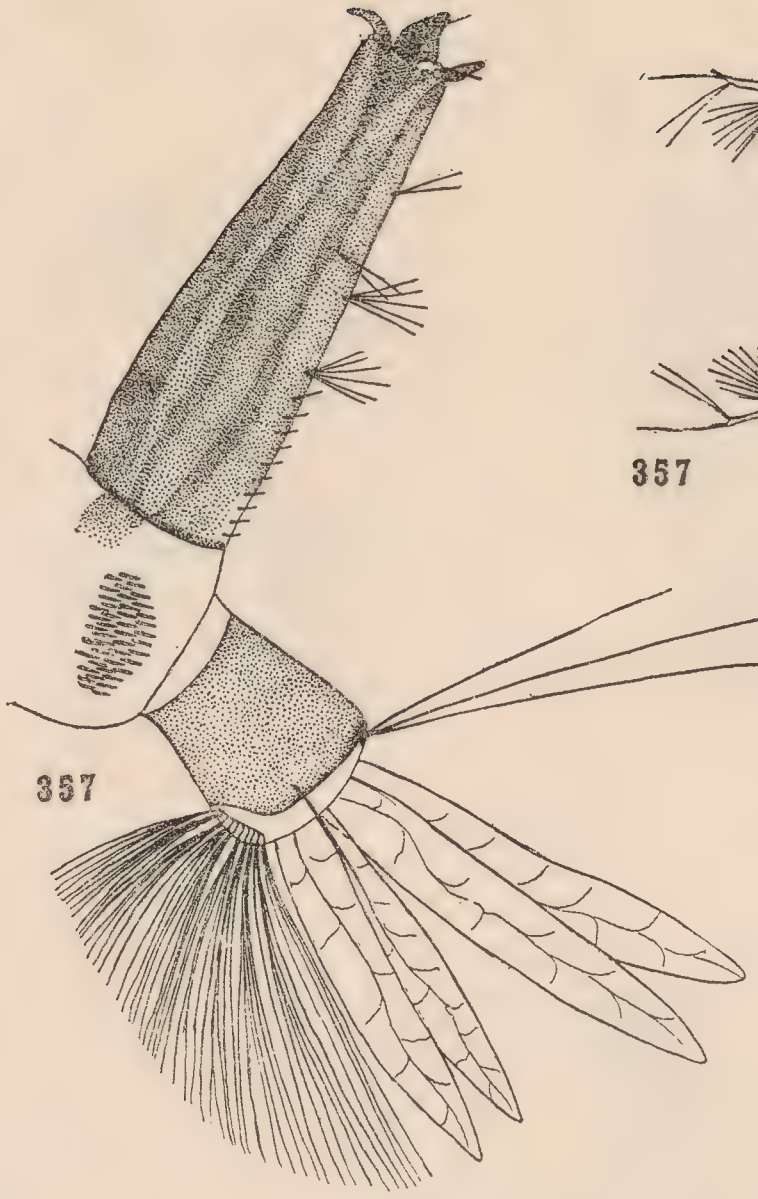

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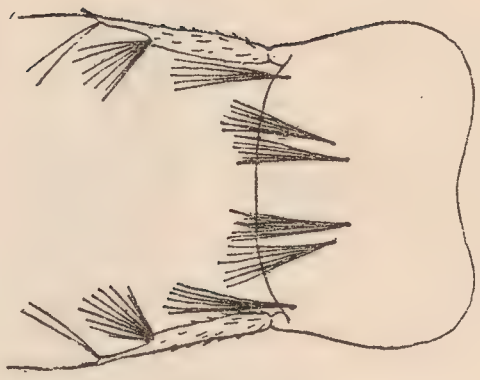

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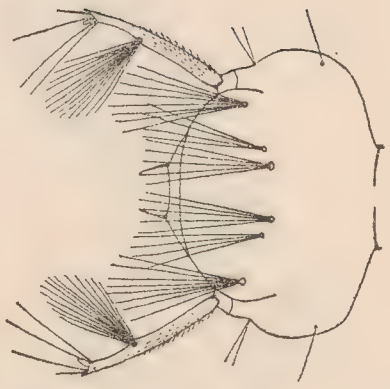

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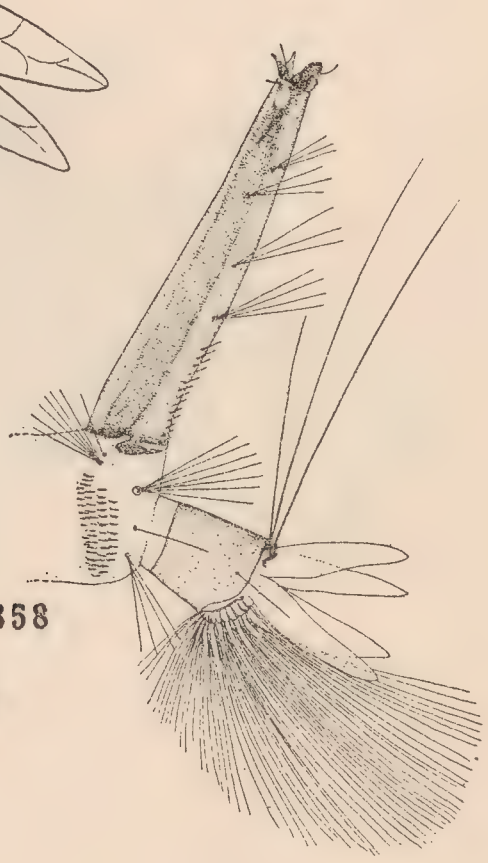

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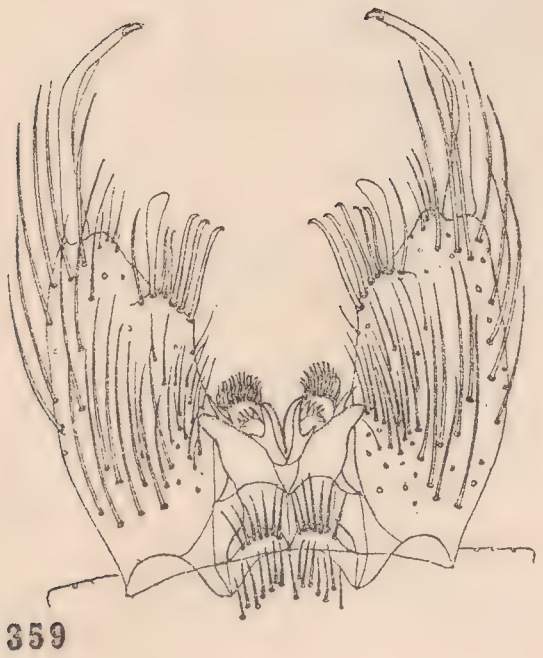

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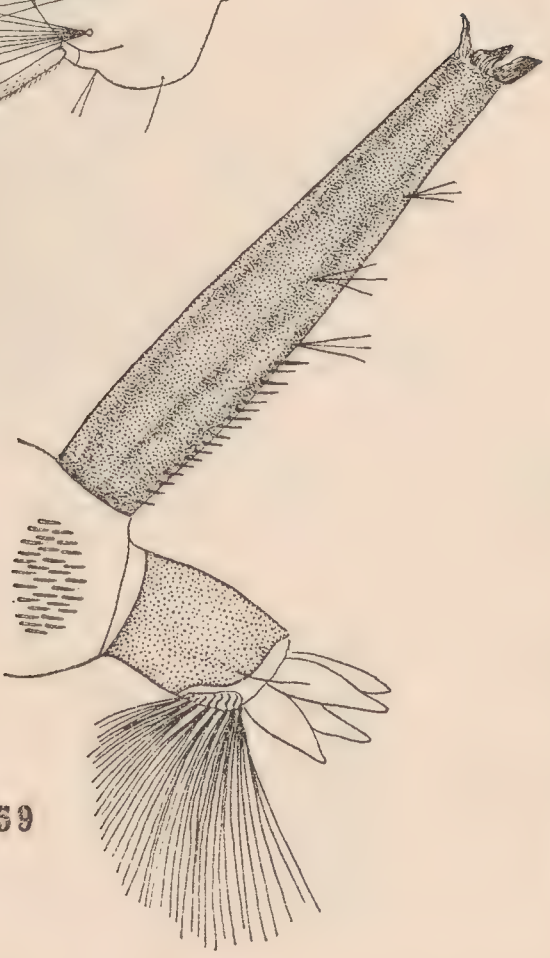

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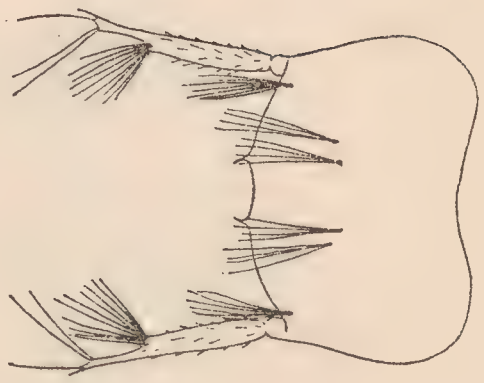
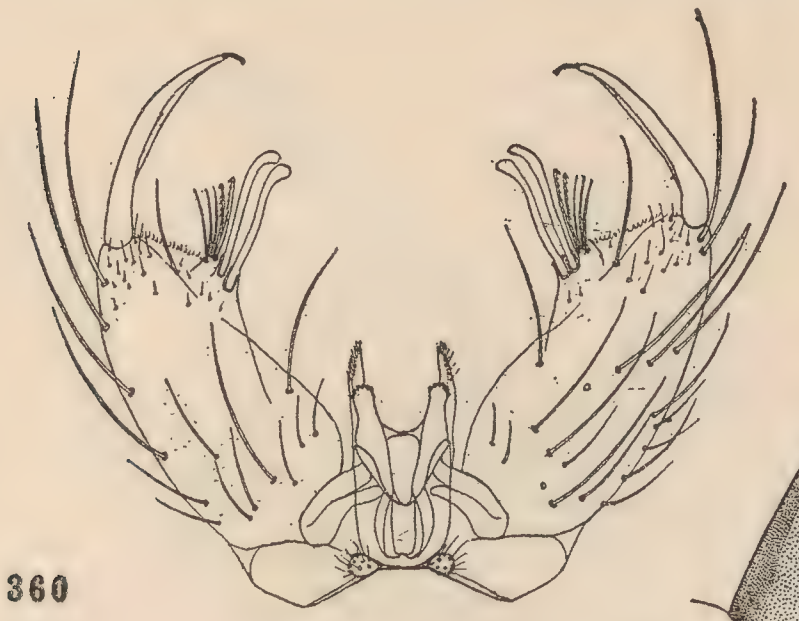
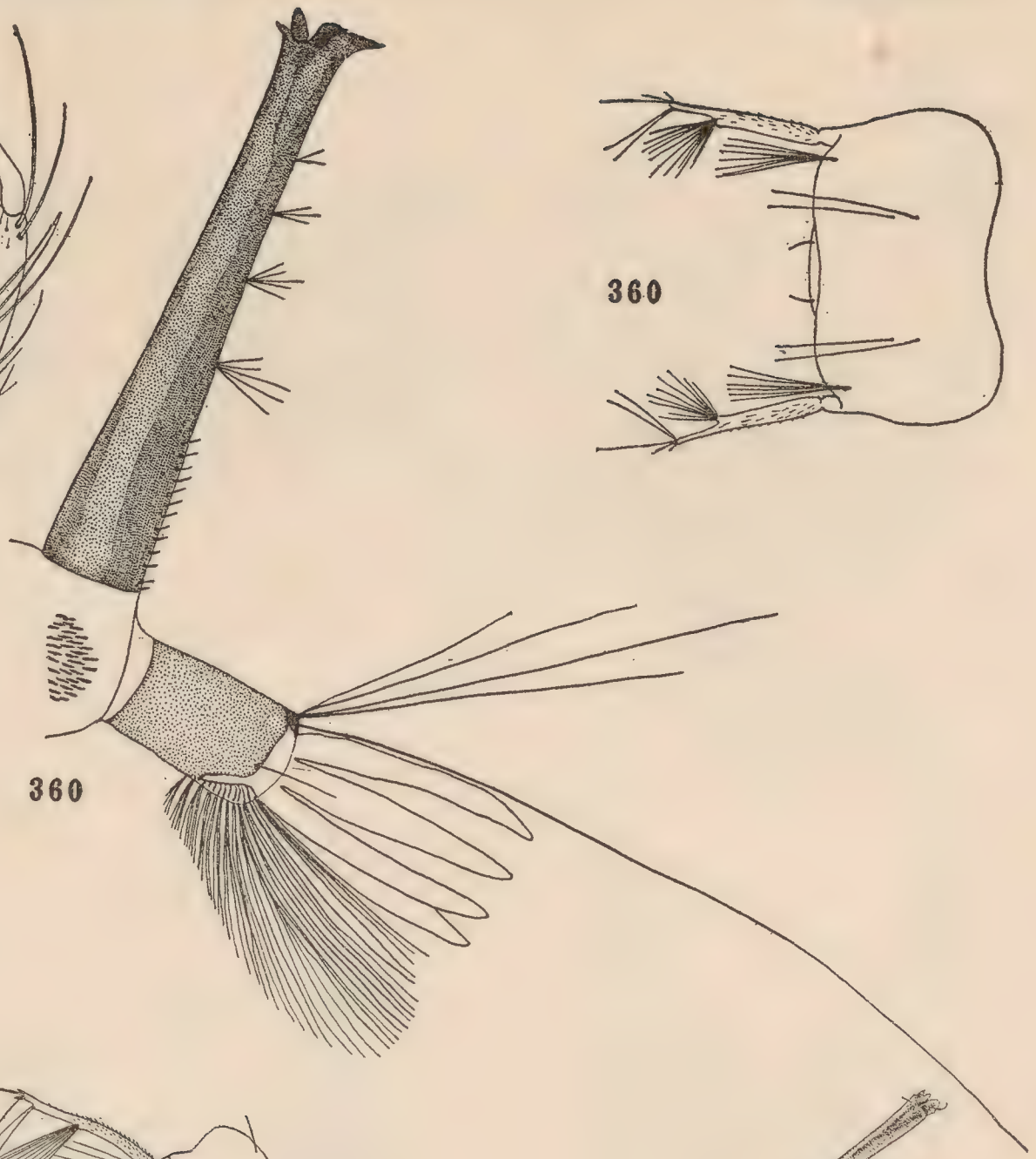
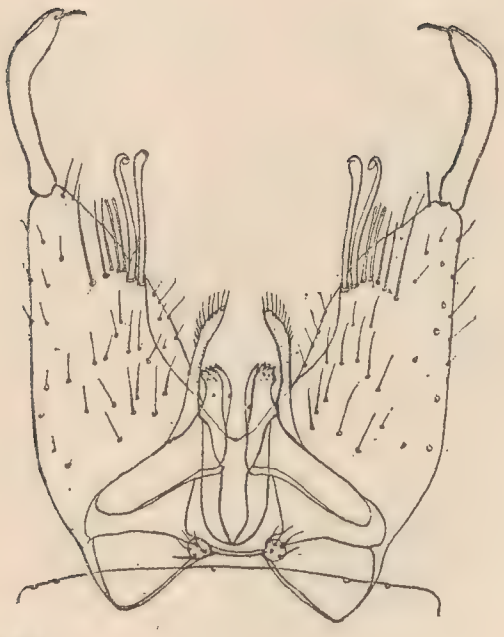


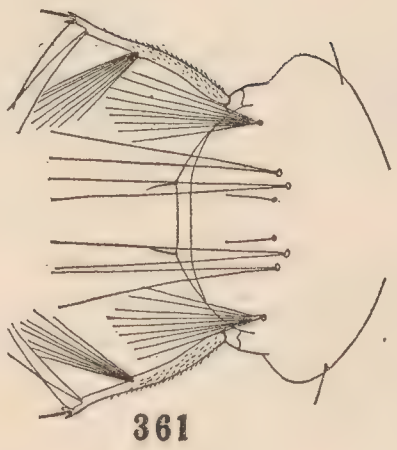
359

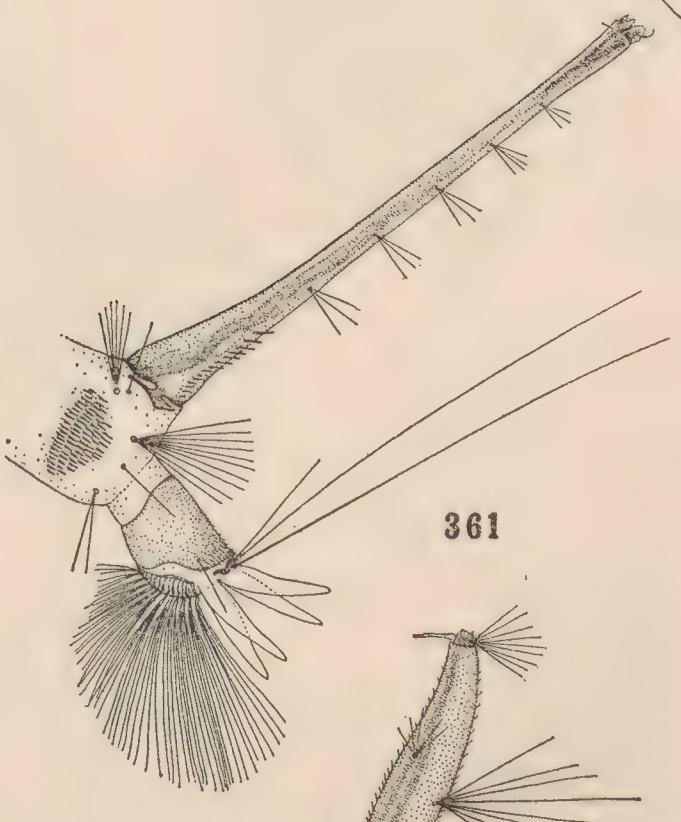
357. *Culex quinquefasciatus* Say, male hypopygium and larva
358. *Culex pipiens* Linn., male hypopygium and larva
359. *Culex sphinx* H., D., and K., male hypopygium and larva

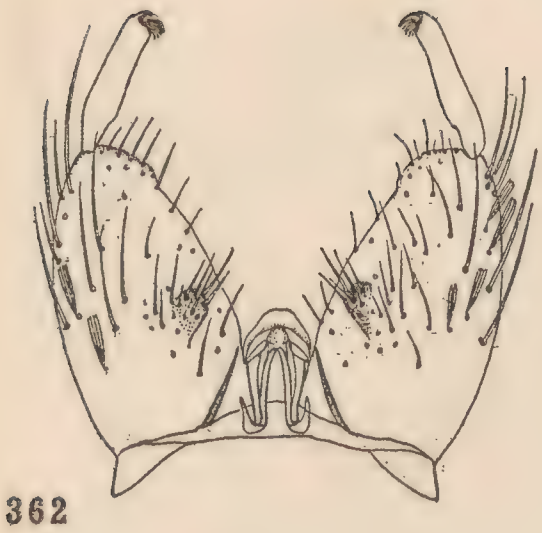


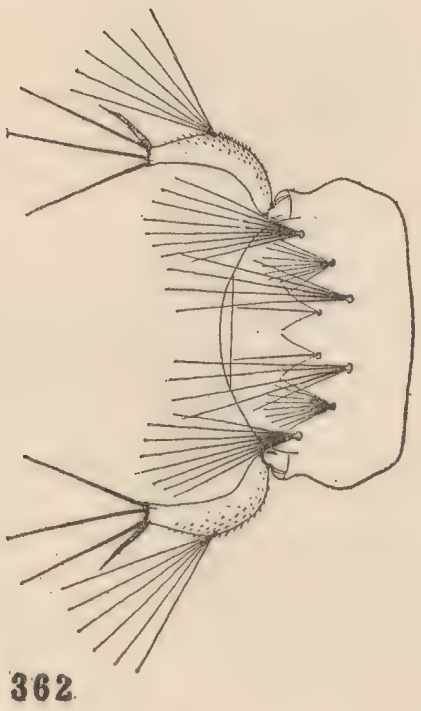


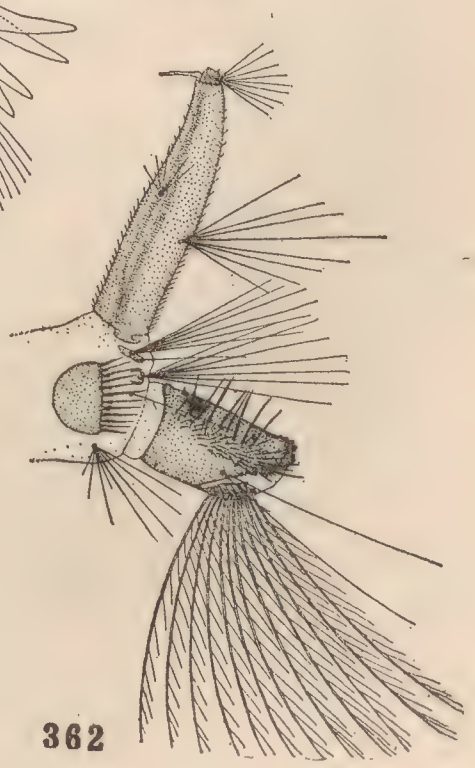






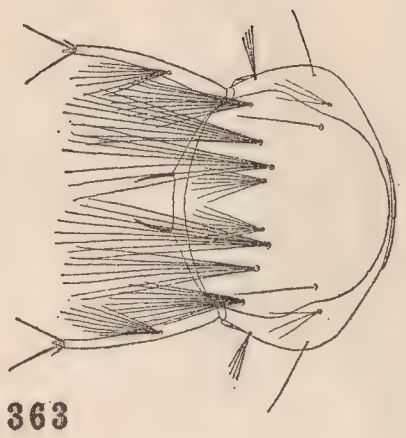






360. *Culex apicalis* Adams, male hypopygium and larva
361. *Culex derivator* D. and K., male hypopygium and larva
362. *Aëdeomyia squamipennis* Lynch A., male hypopygium and larva

363



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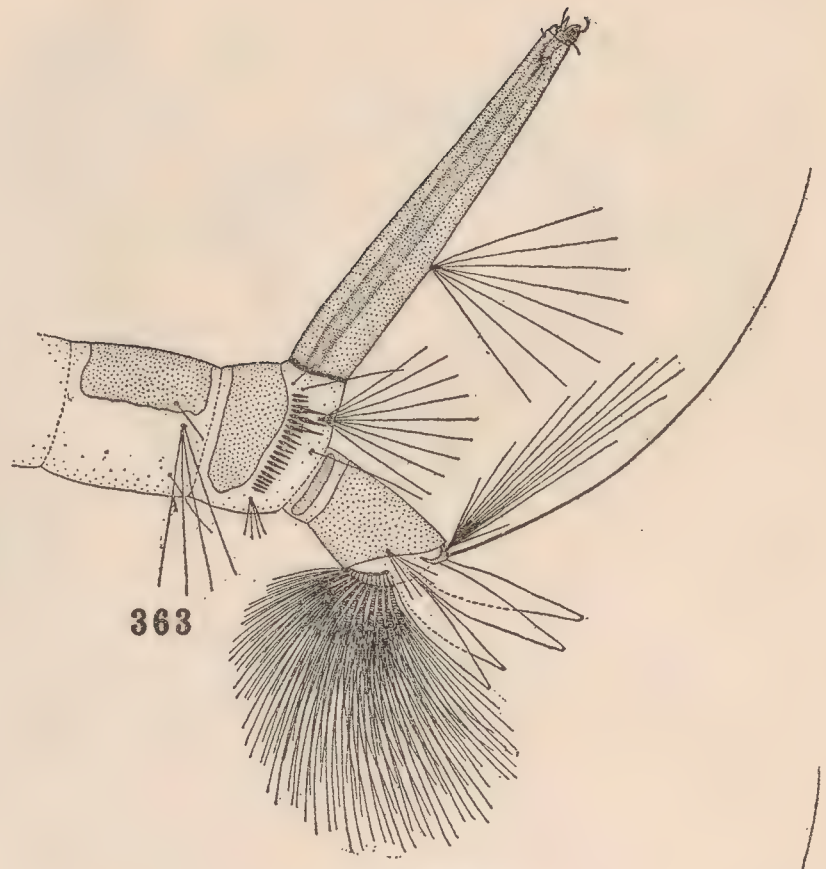

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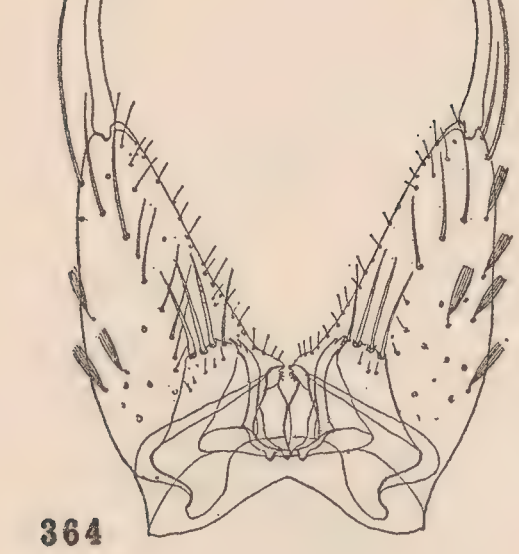

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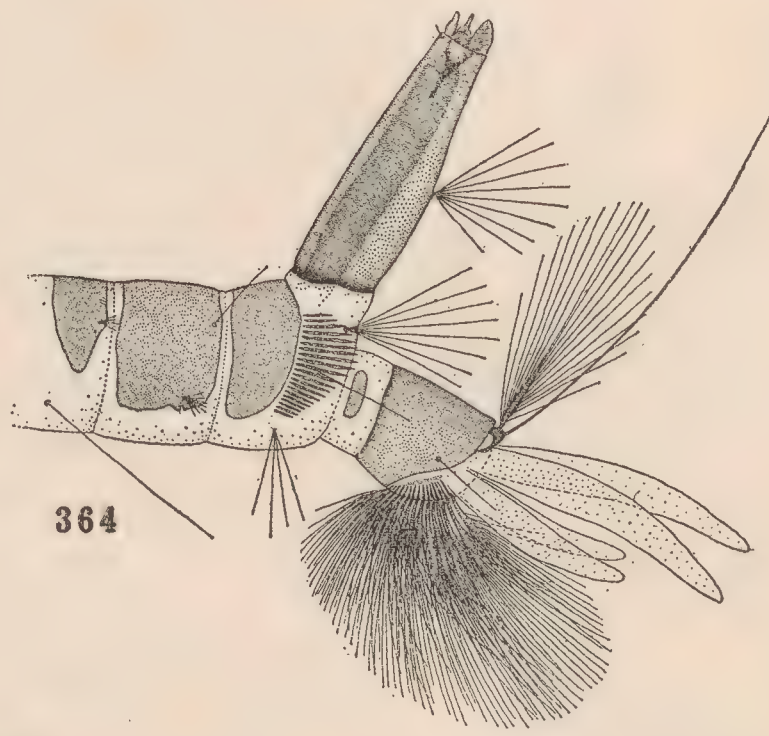

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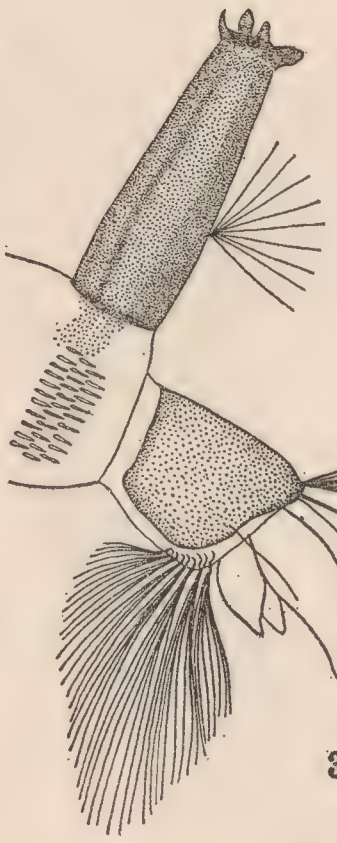

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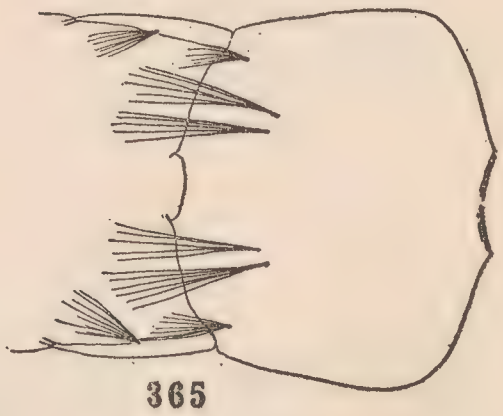
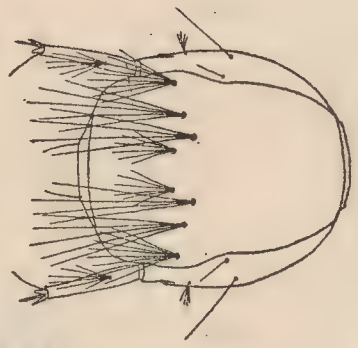


365

363. *Orthopodomyia phyllozoa* D. and K., male hypopygium and larva
364. Male: *Orthopodomyia signifera* Coq.
Larva: *Orthopodomyia fascipes* Coq.
365. Male: *Orthopodomyia fascipes* Coq.
Larva: *Orthopodomyia signifera* Coq., Stage III

366



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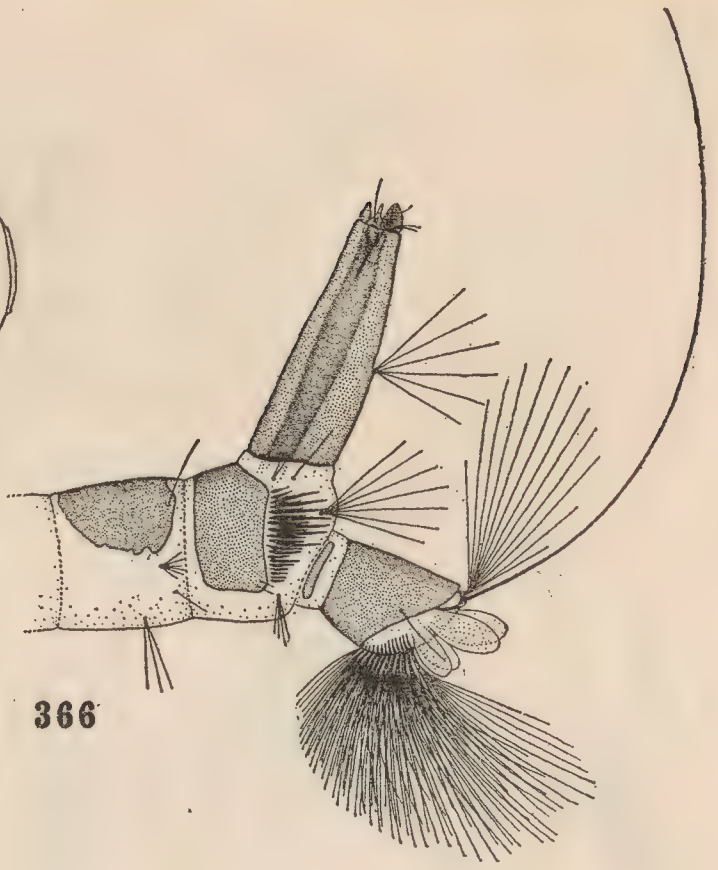

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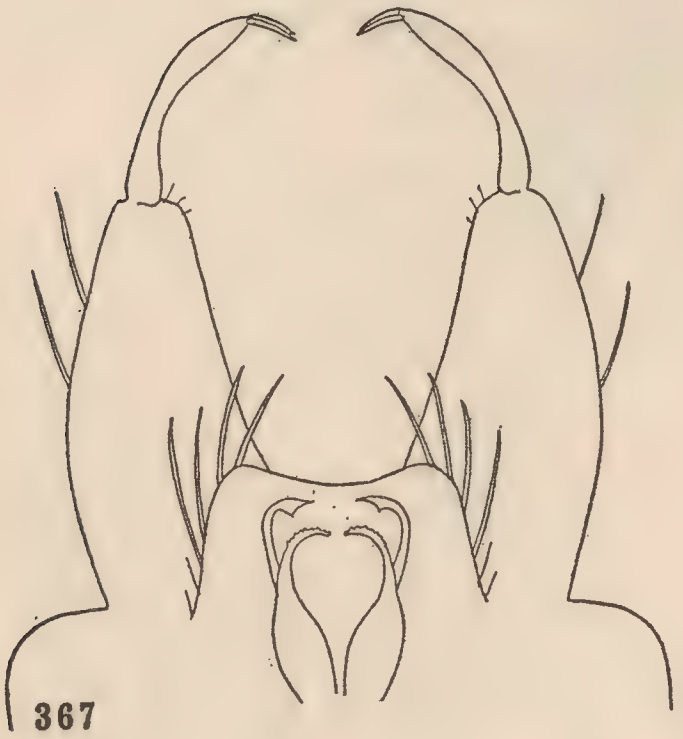

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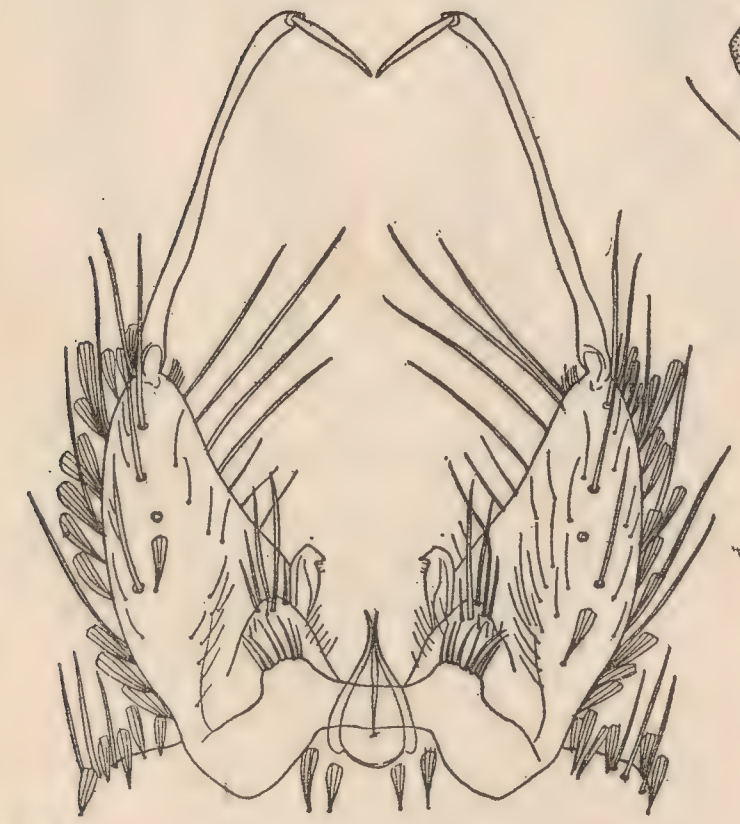

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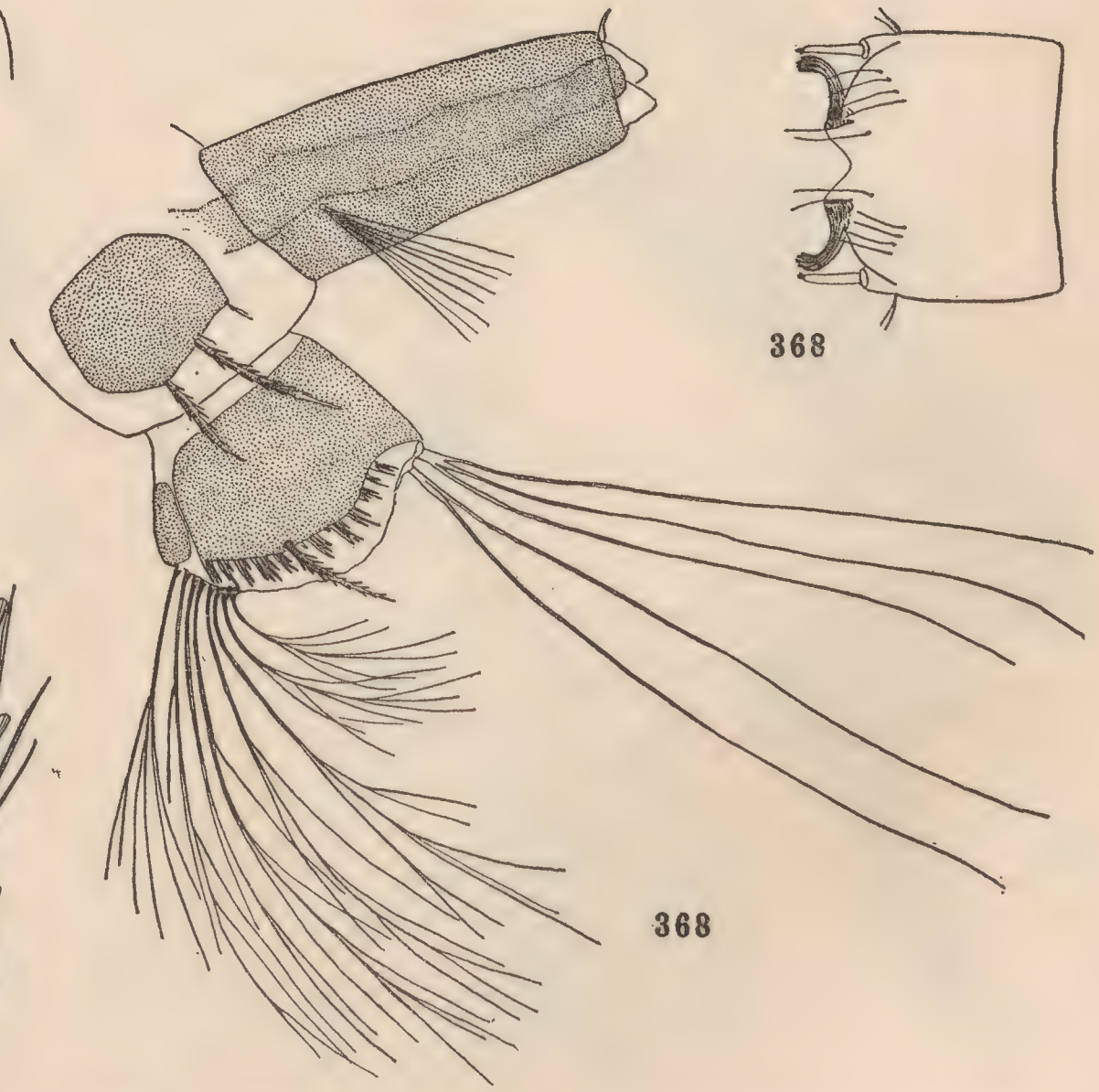
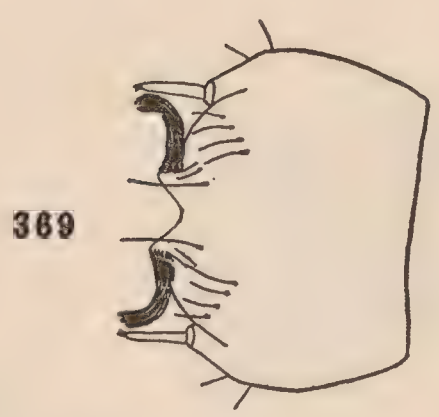


368

368

366. *Orthopodomyia signifera* Coq. (*waverleyi* Grabh.), male hypopygium and larva
367. *Orthopodomyia albicosta* Lutz, male hypopygium
368. *Megarhinus purpureus* Theob., male hypopygium and larva



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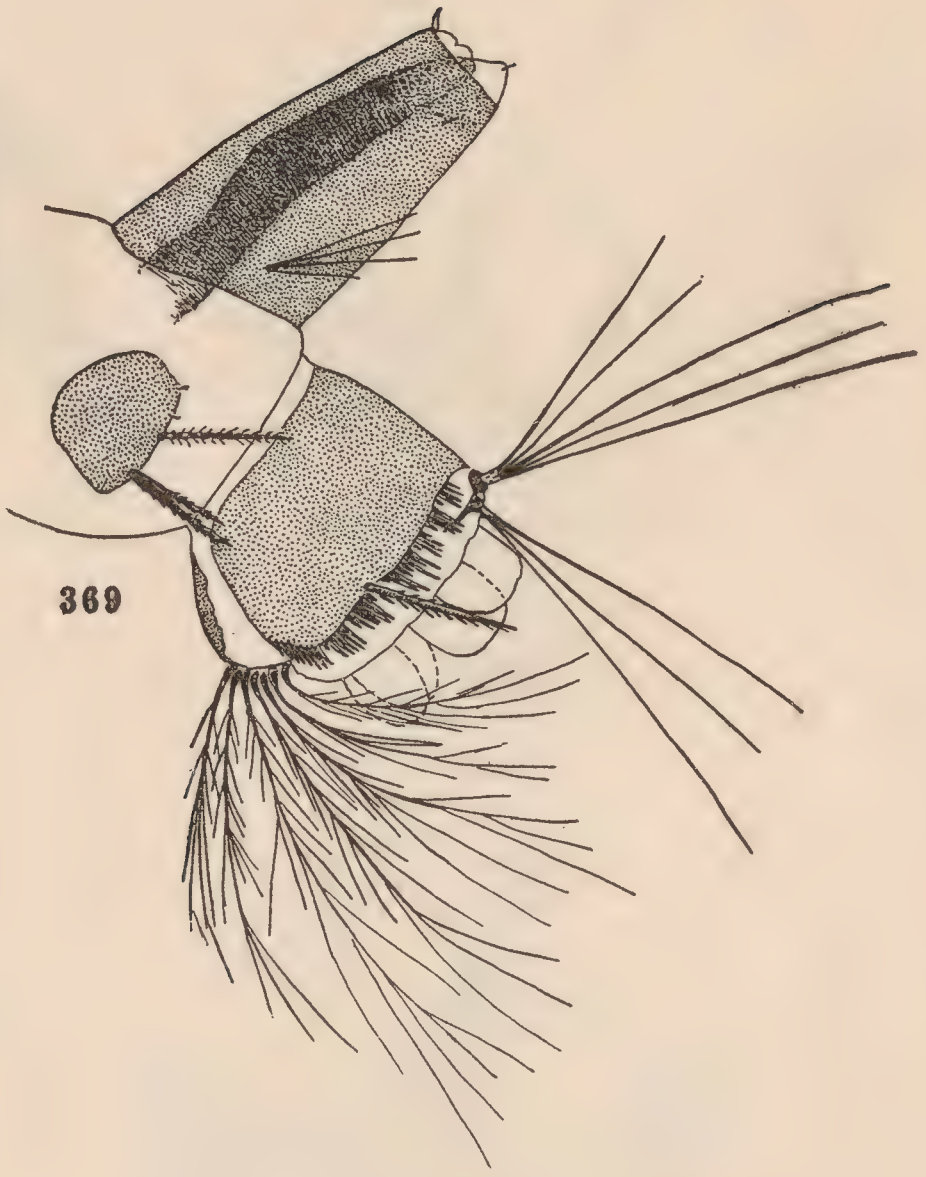

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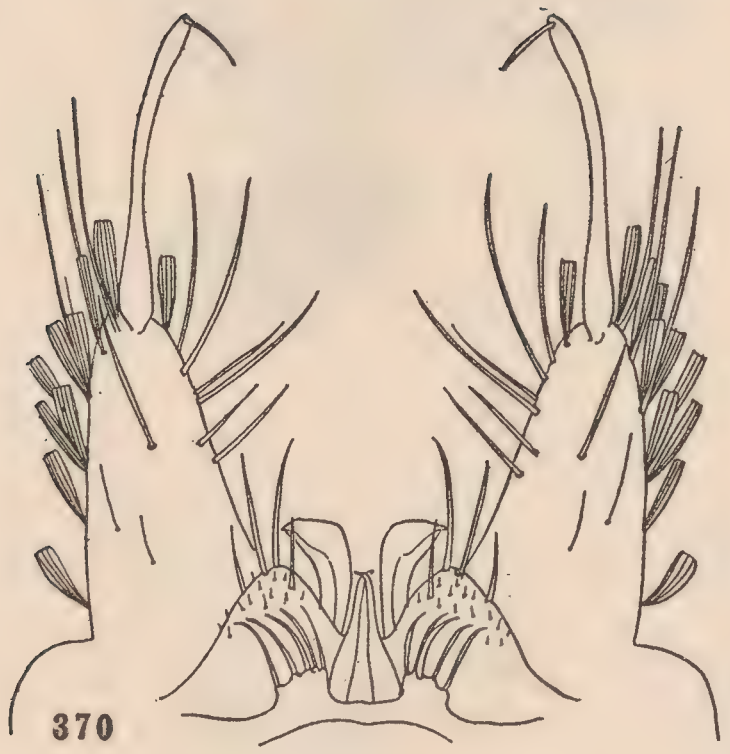

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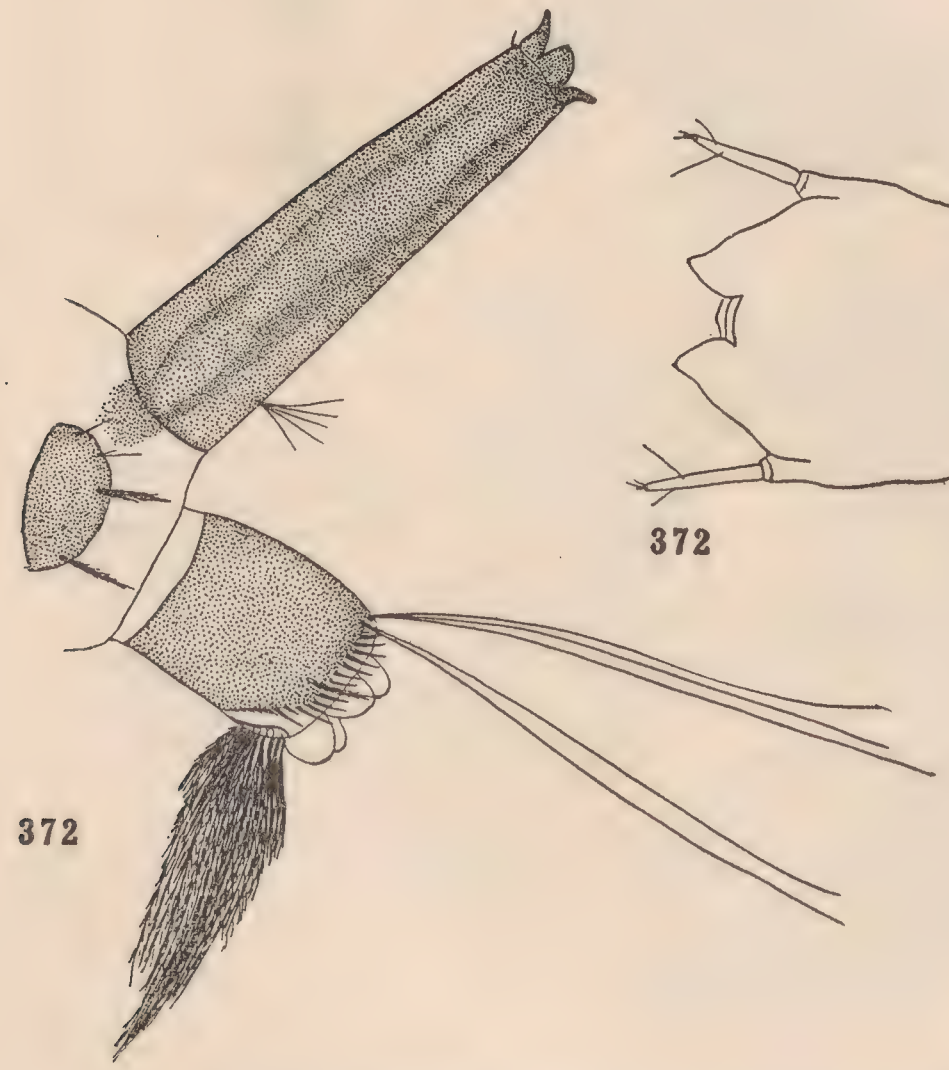
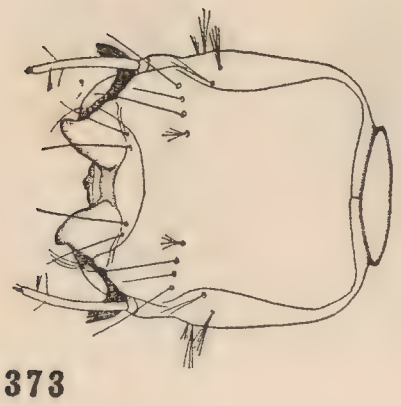


372

371

369. *Megarhinus trichopygus* Wied., larva
370. *Megarhinus superbus* D. and K., male hypopygium
371. *Megarhinus hæmorrhoidalis* Fab., male hypopygium
372. *Megarhinus violaceus* Wied., larva

373



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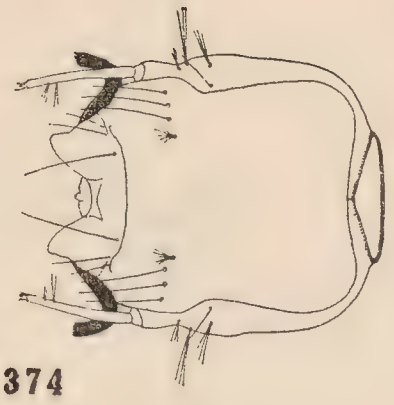

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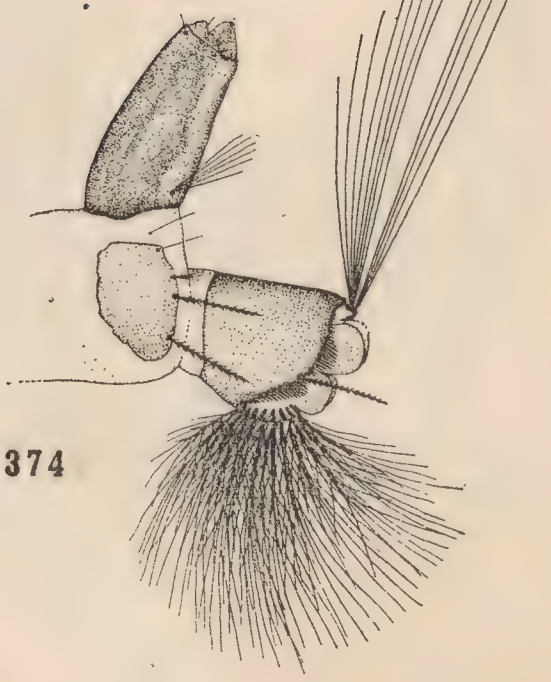

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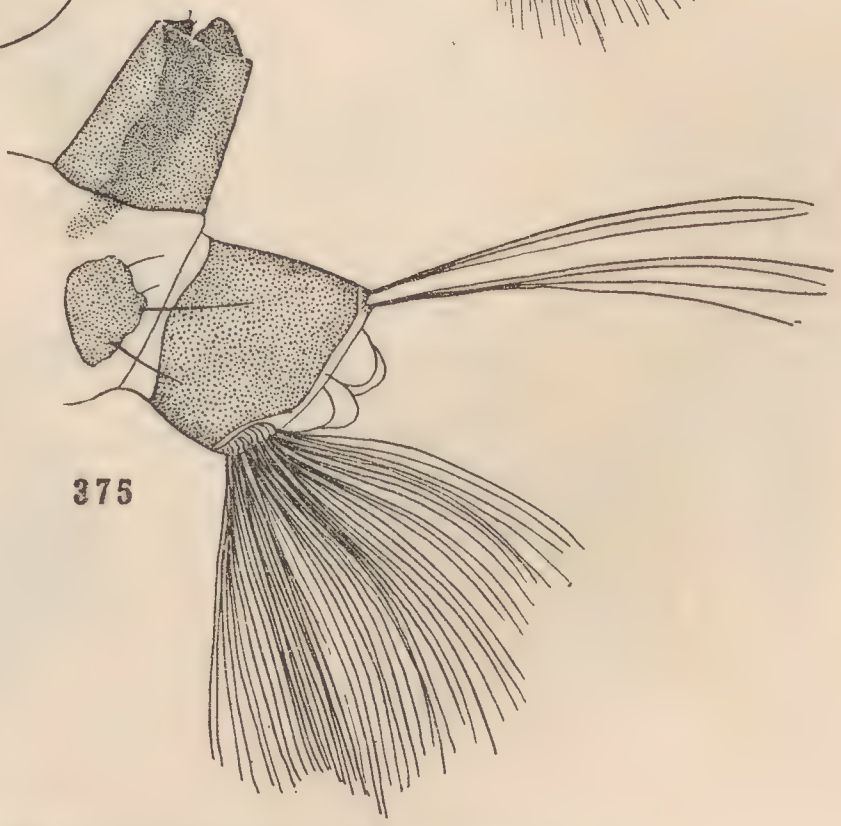
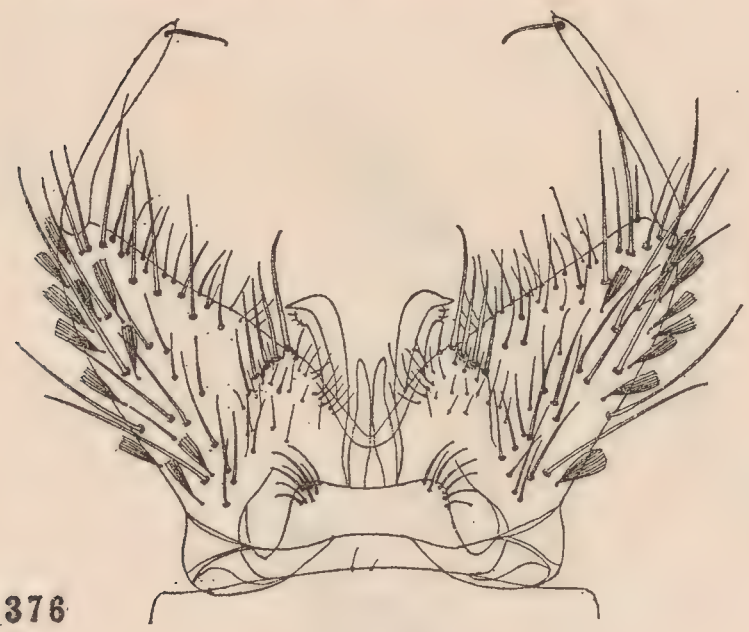


375

373. *Megarhinus guadeloupensis* D. and K., male hypopygium and larva
374. *Megarhinus portoricensis* von R., male hypopygium and larva
375. *Megarhinus septentrionalis* D. and K., male hypopygium and larva



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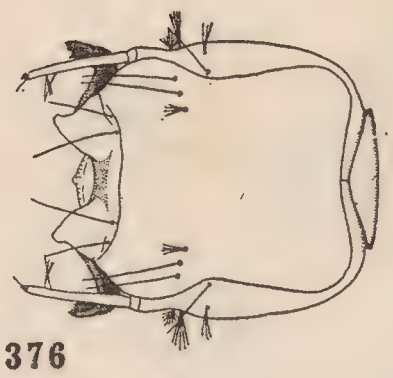

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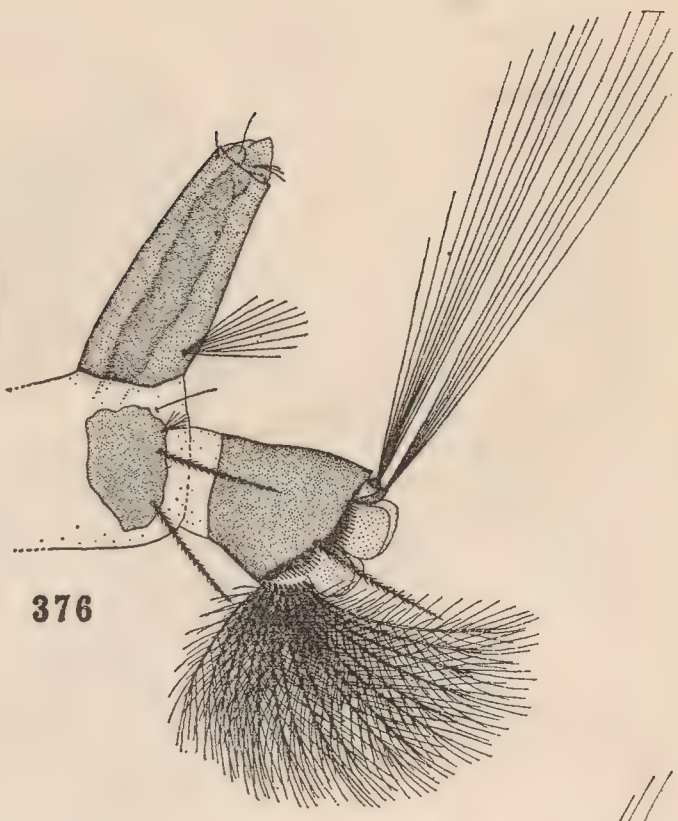

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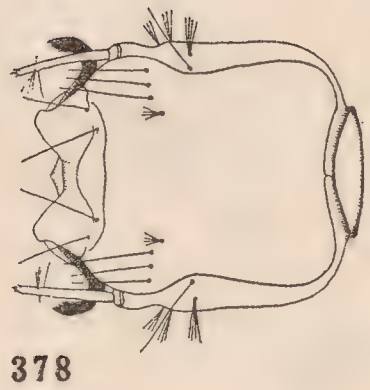

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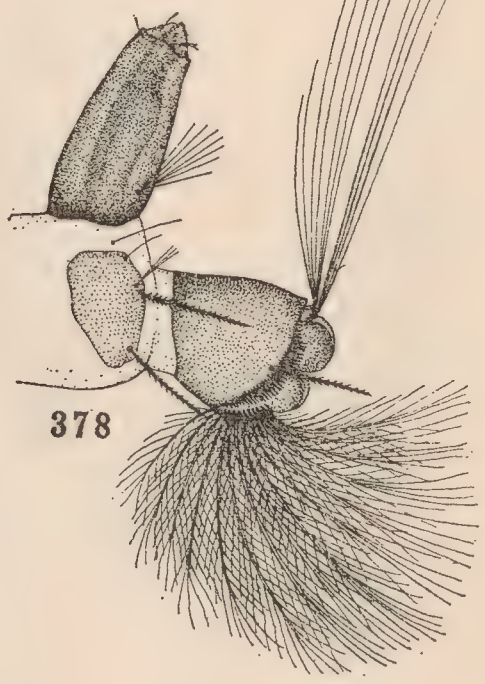

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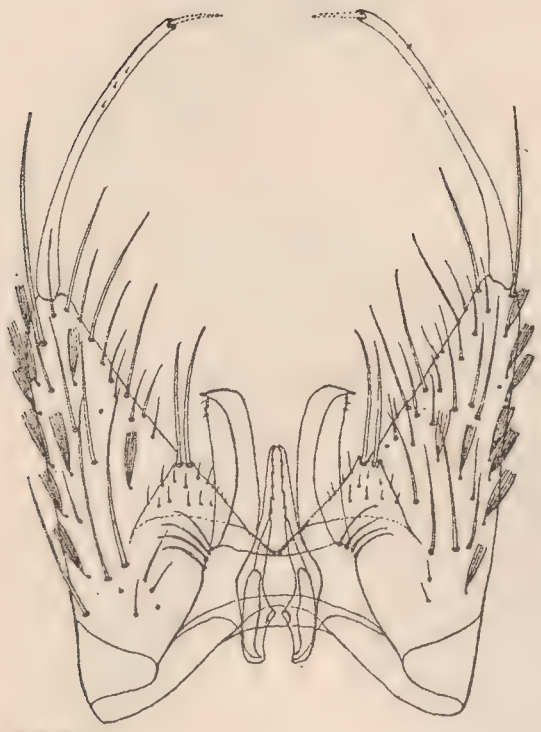

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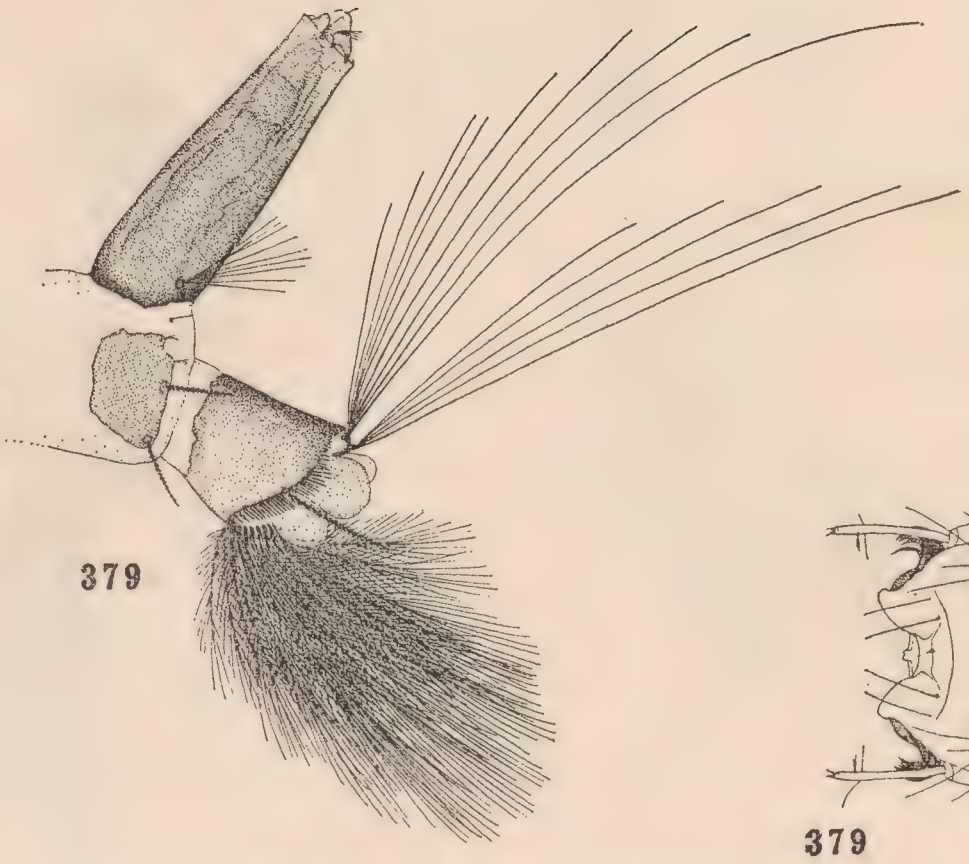

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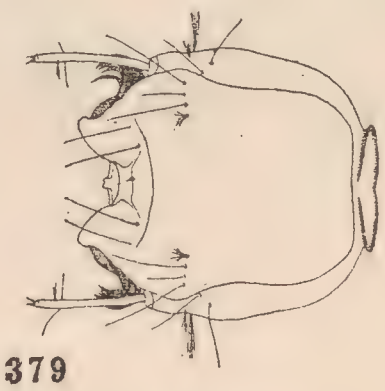
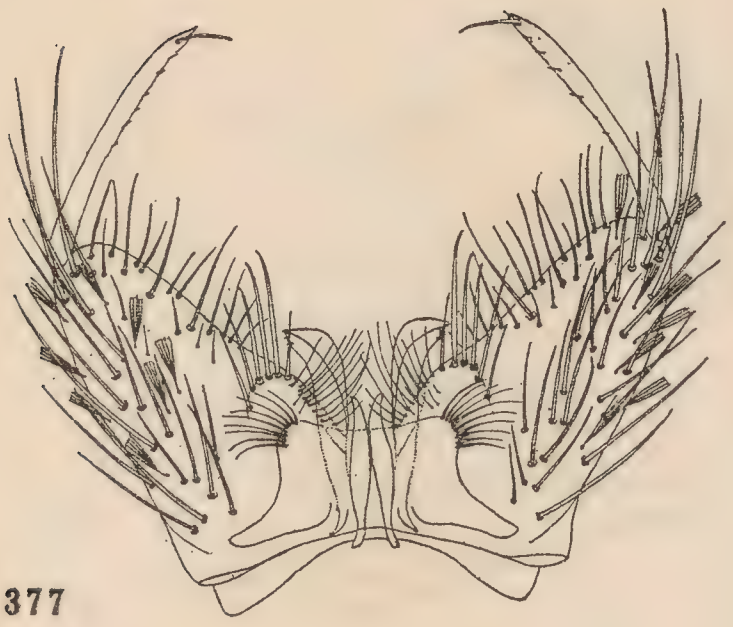


379

376. *Megarhinus moctezuma* D. and K., male hypopygium and larva
378. *Megarhinus trinidadensis* D. and K., male hypopygium and larva
379. *Megarhinus hypoptes* Knab, male hypopygium and larva



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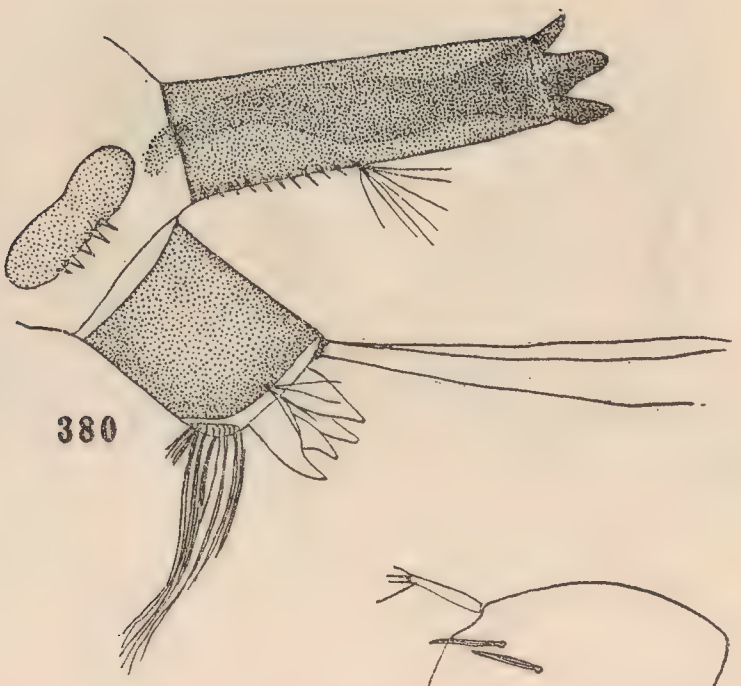

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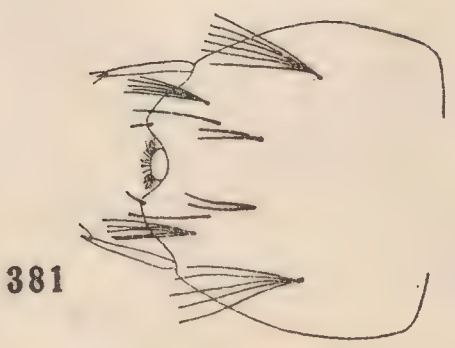

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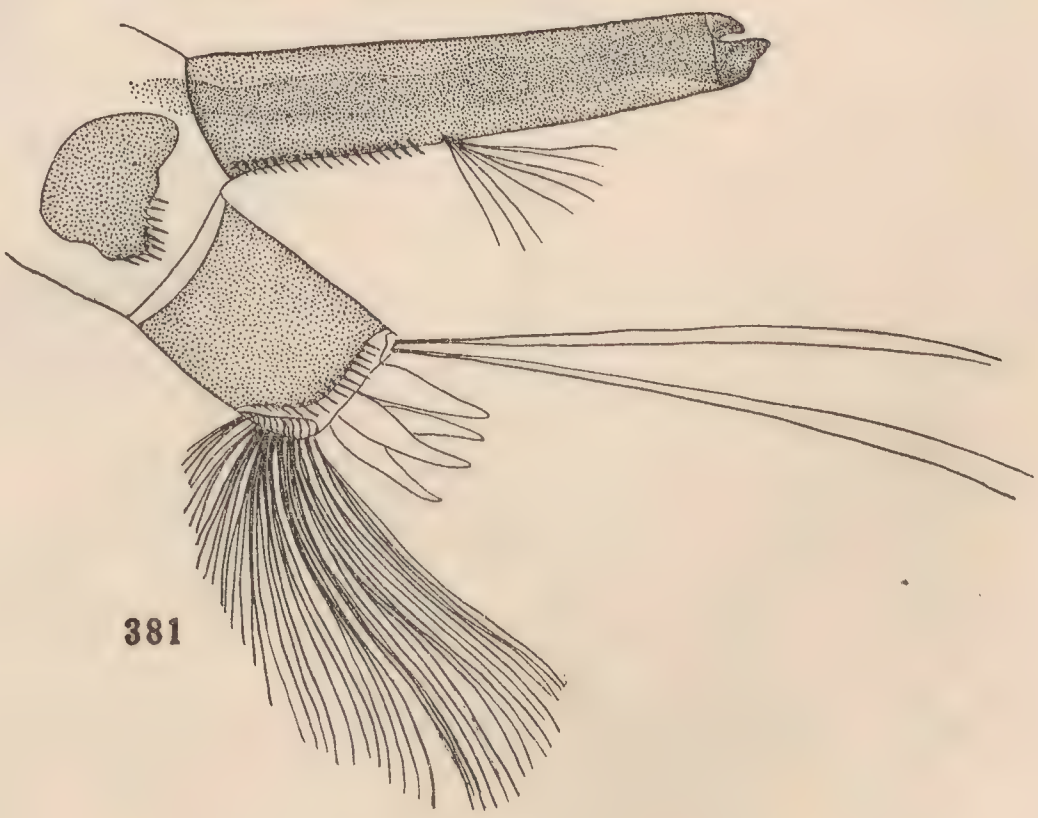

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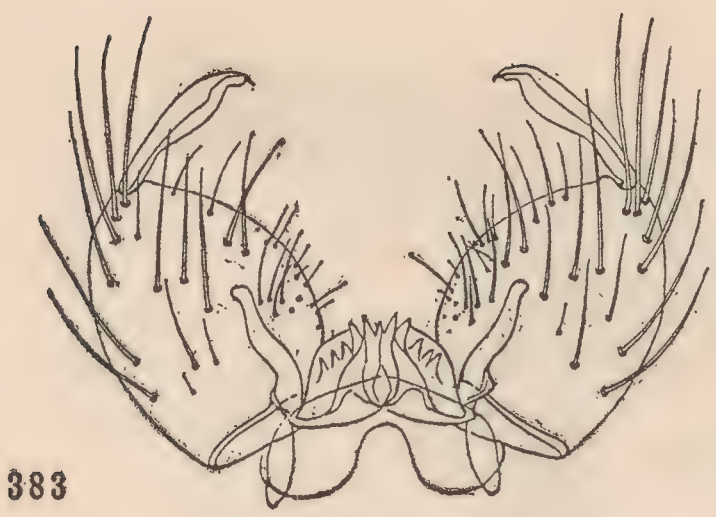
377. *Megarhinus rutilus* Coq., male hypopygium
380. *Uranotænia leucoptera* Theob., larva
381. *Uranotænia anhydor* Dyar, male hypopygium and larva
382. *Uranotænia pallidoventer* Theob., male hypopygium



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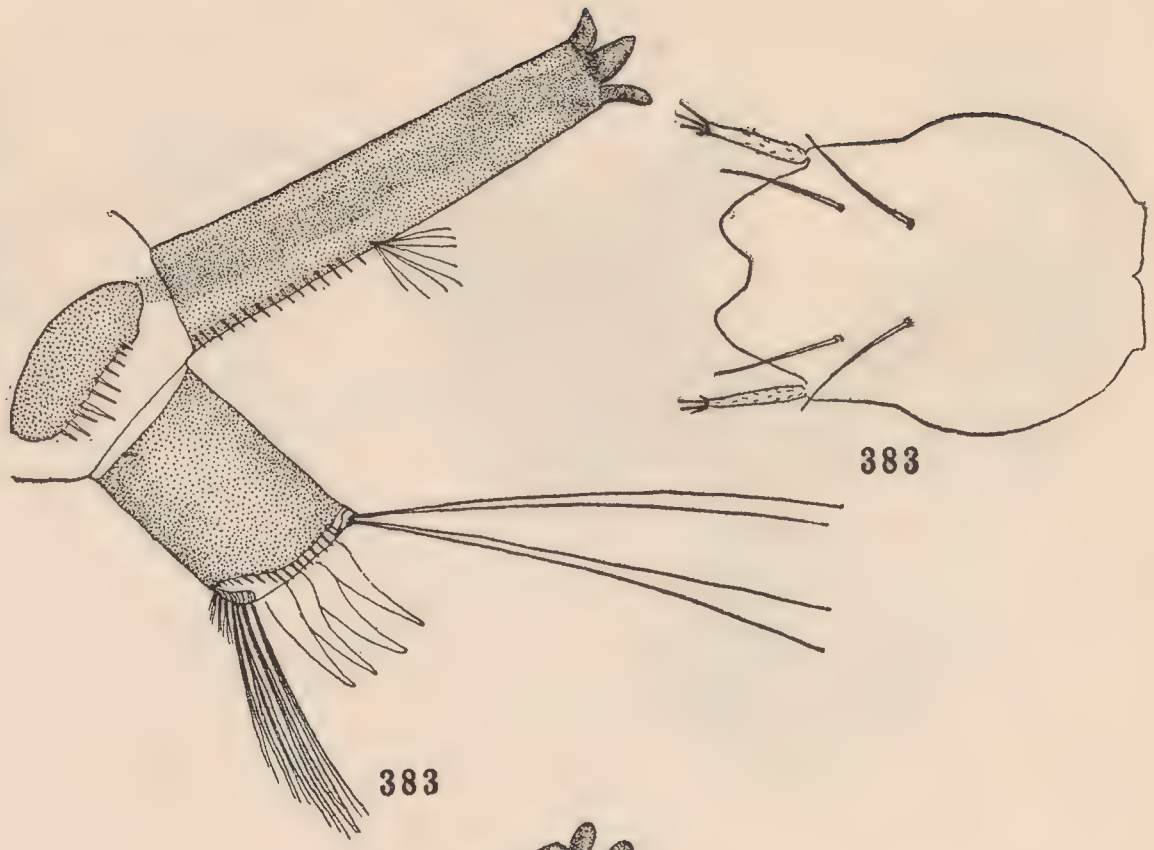

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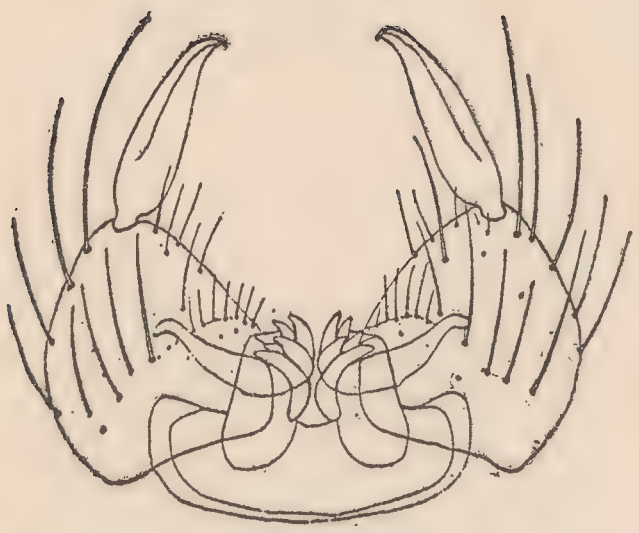

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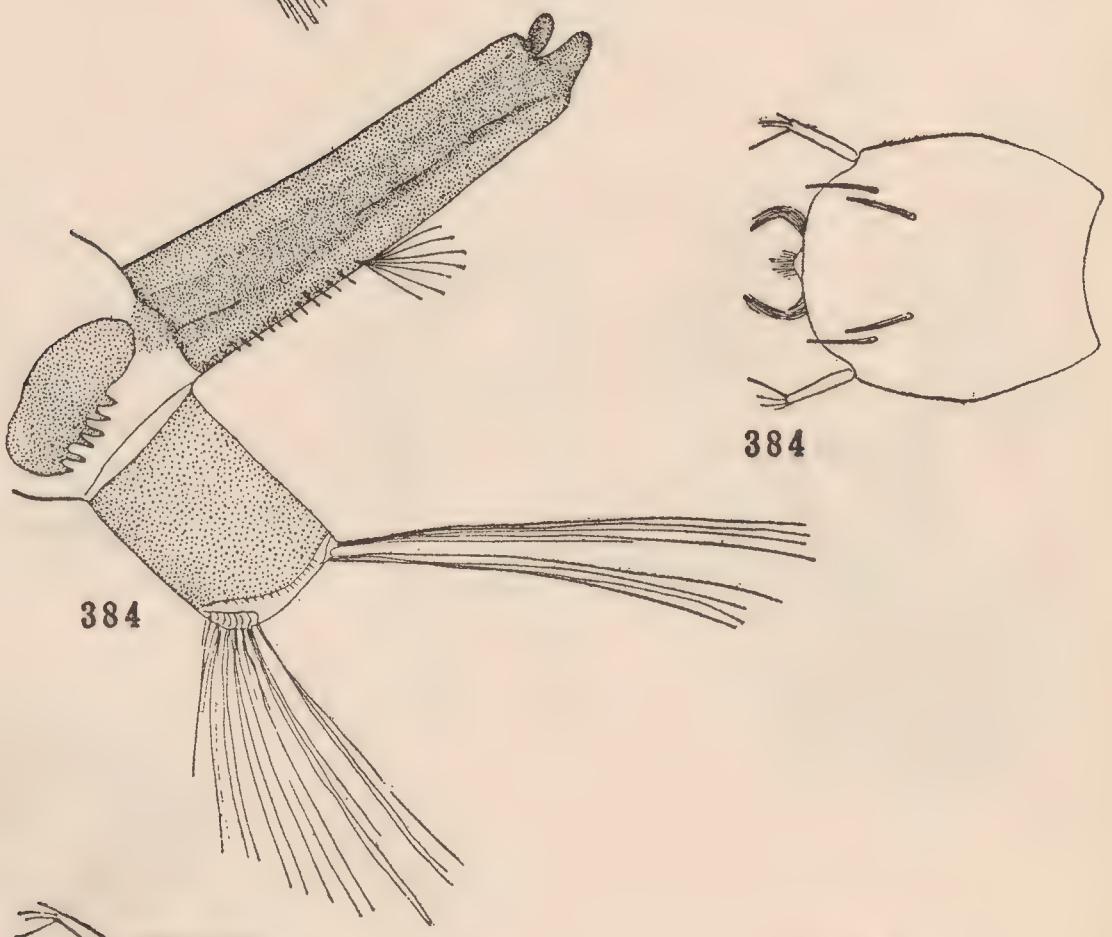

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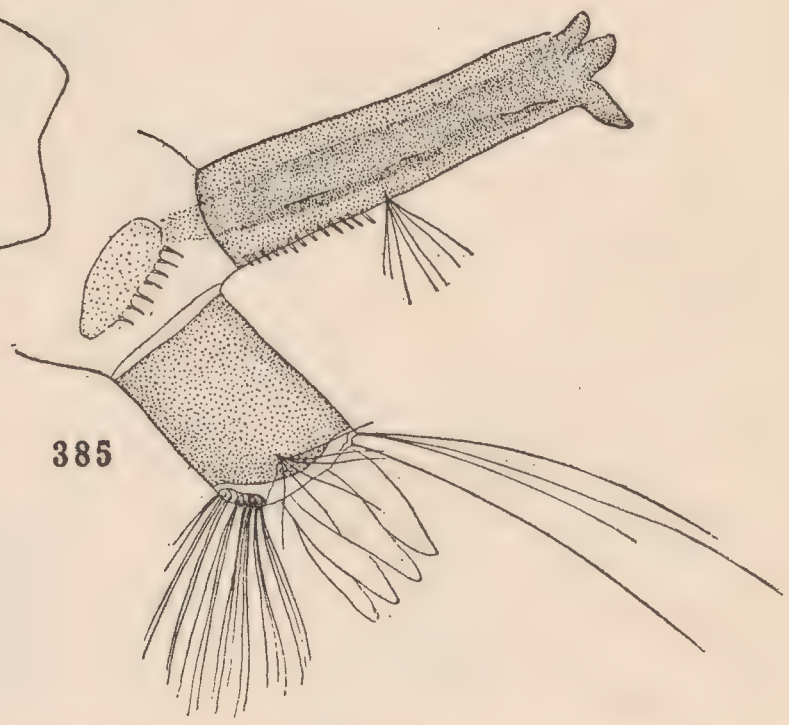

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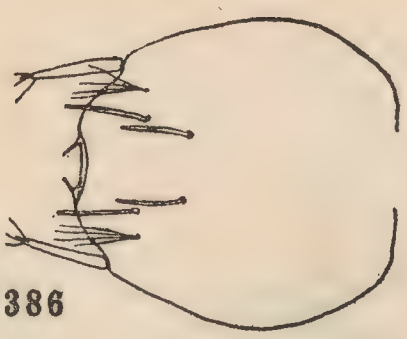
386

383. *Uranotænia sapphirina* O. S., male hypopygium and larva
384. *Uranotænia geometrica* Theob., male hypopygium and larva
385. *Uranotaenia pulcherrima* Lynch, male hypopygium and larva

386



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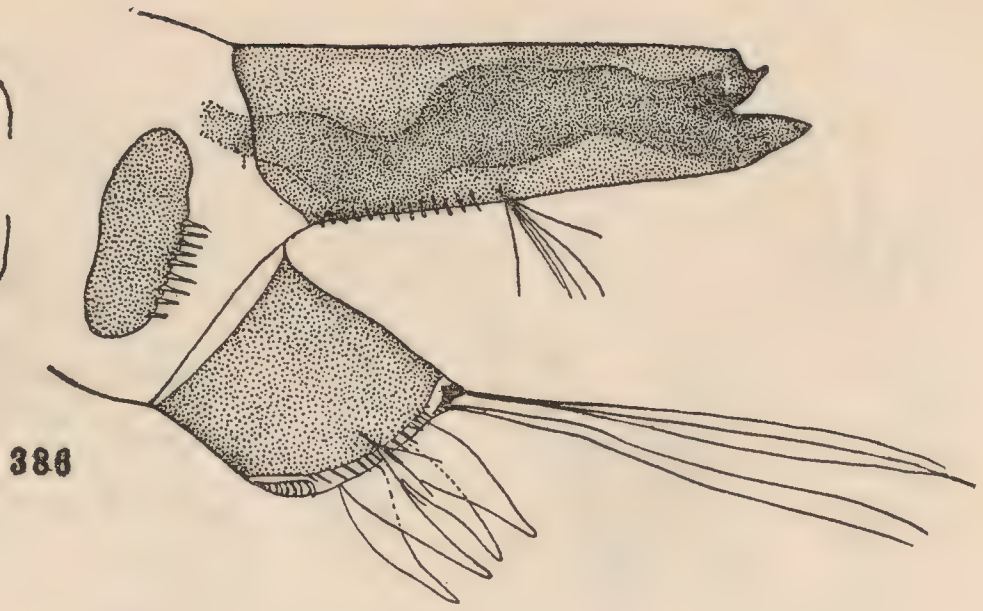

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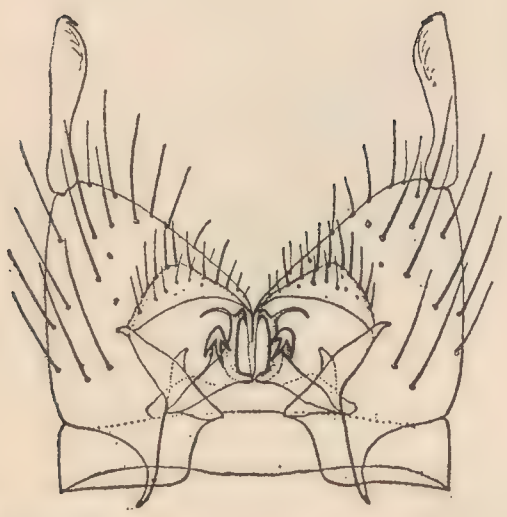

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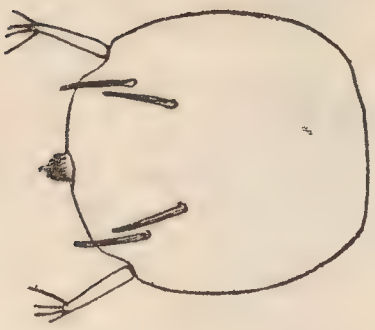

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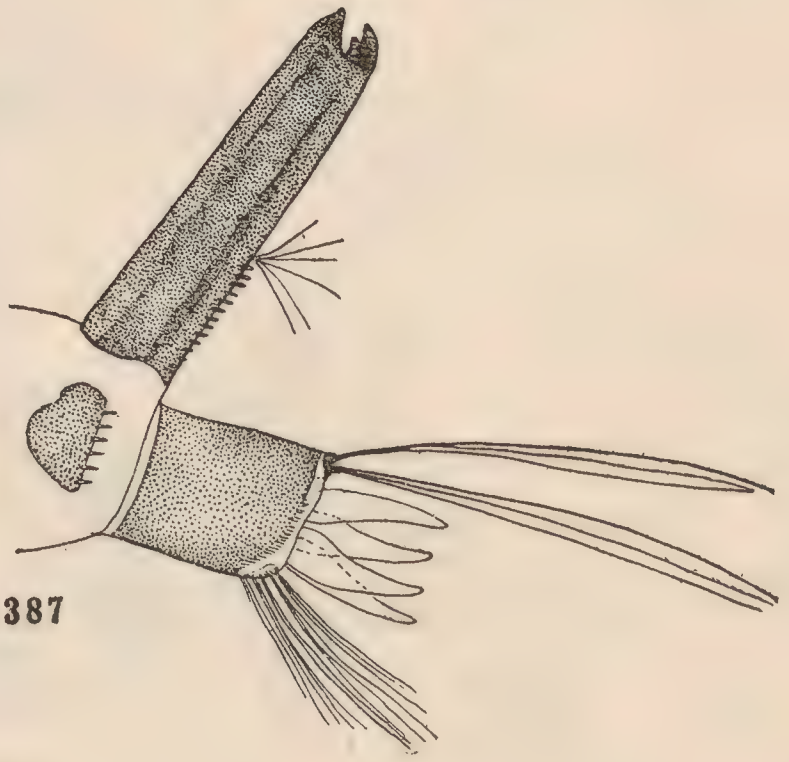

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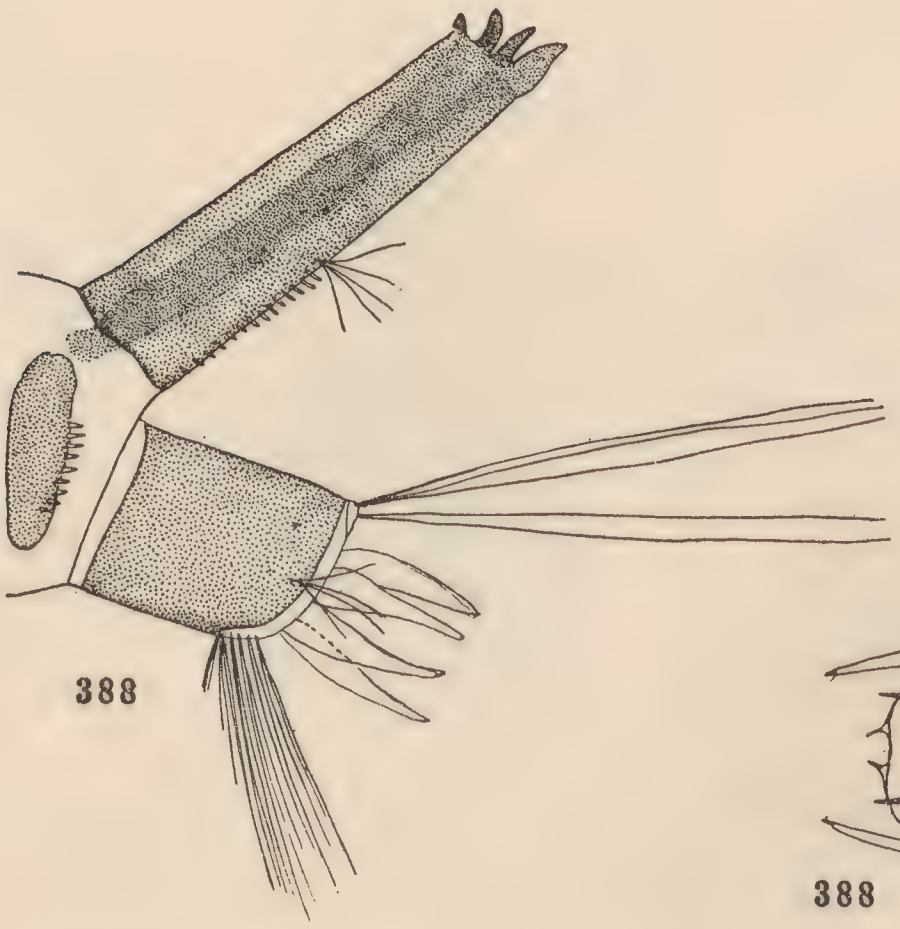

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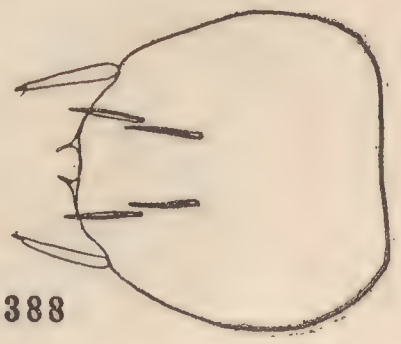
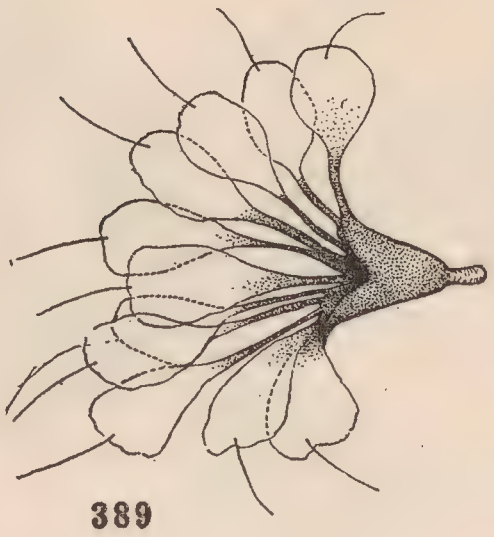


388

386. *Uranotænia calosomata* D. and K., male hypopygium and larva
387. *Uranotænia coatzacoalcos* D. and K., male hypopygium and larva
388. *Uranotaenia lowii* Theob., male hypopygium and larva

389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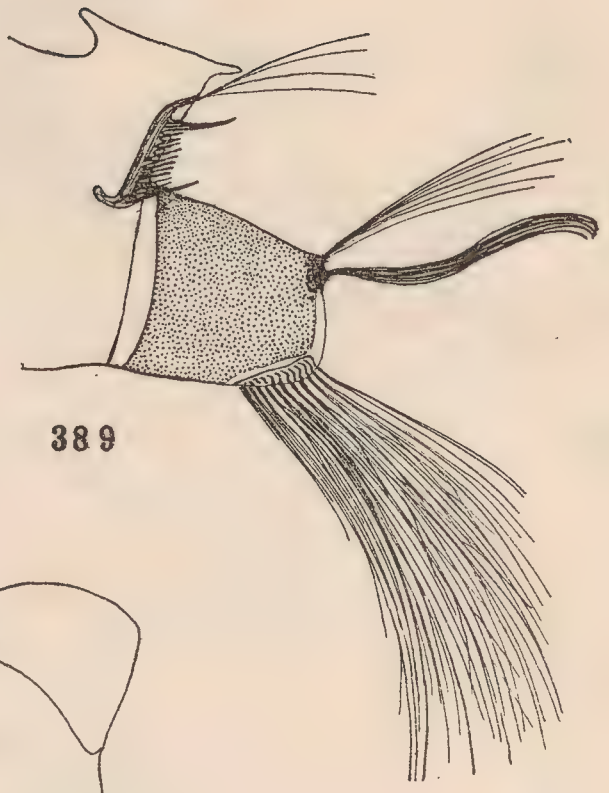
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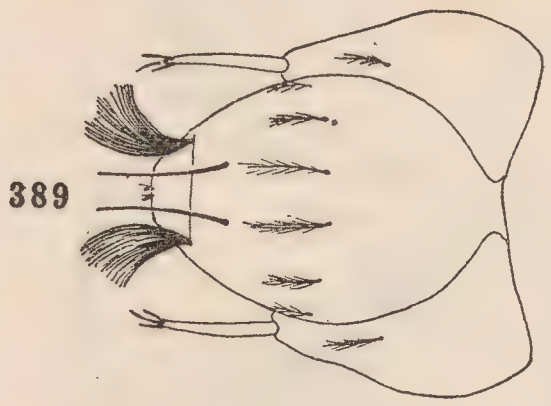
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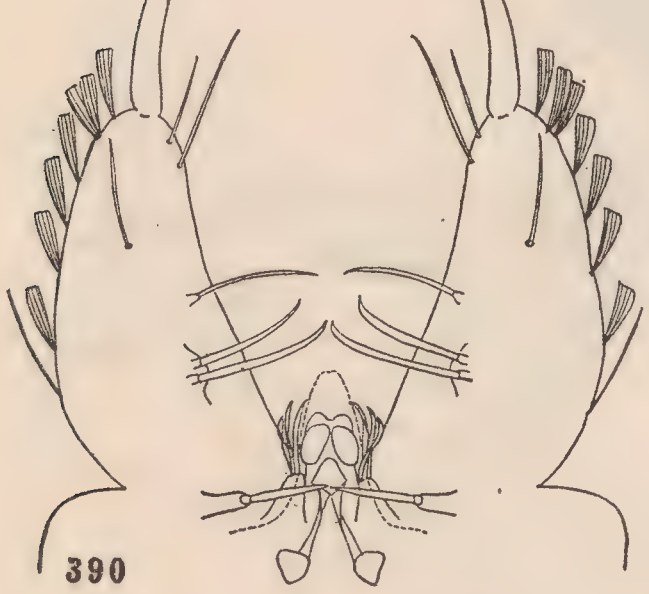
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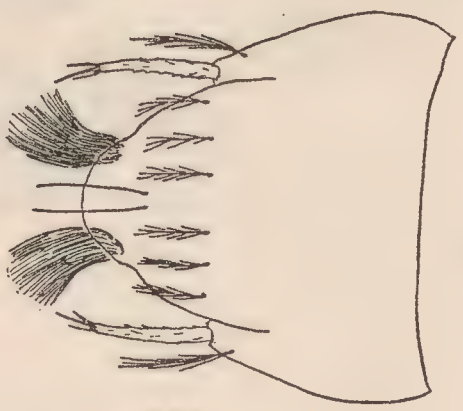
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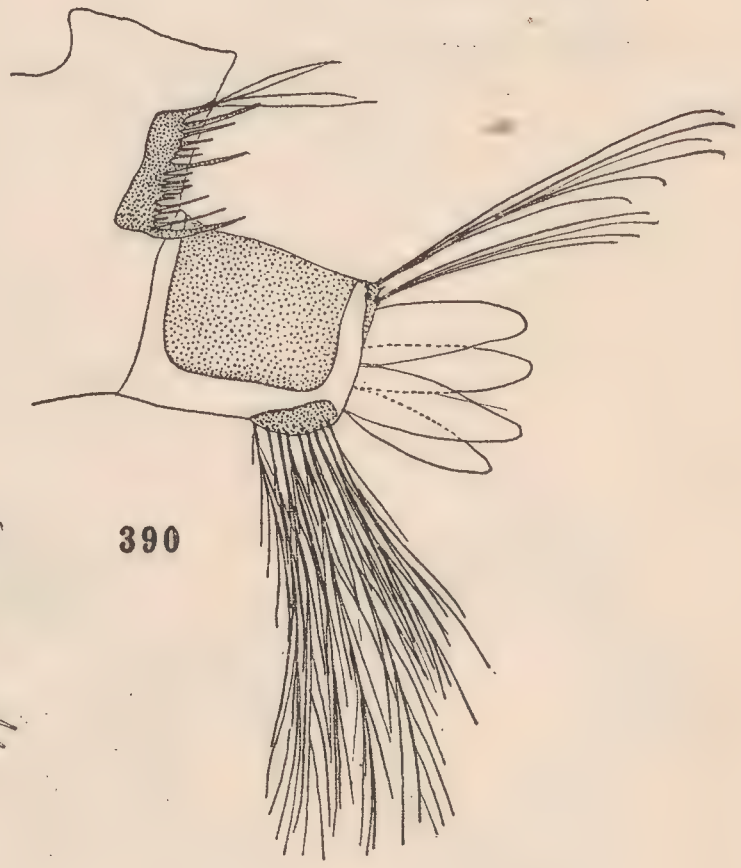
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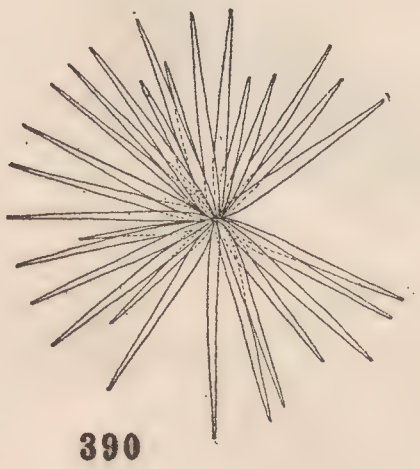
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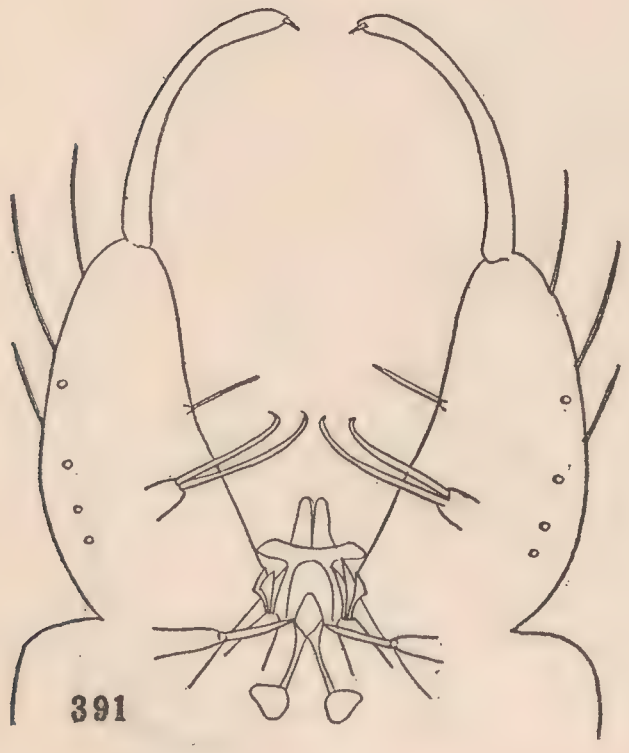
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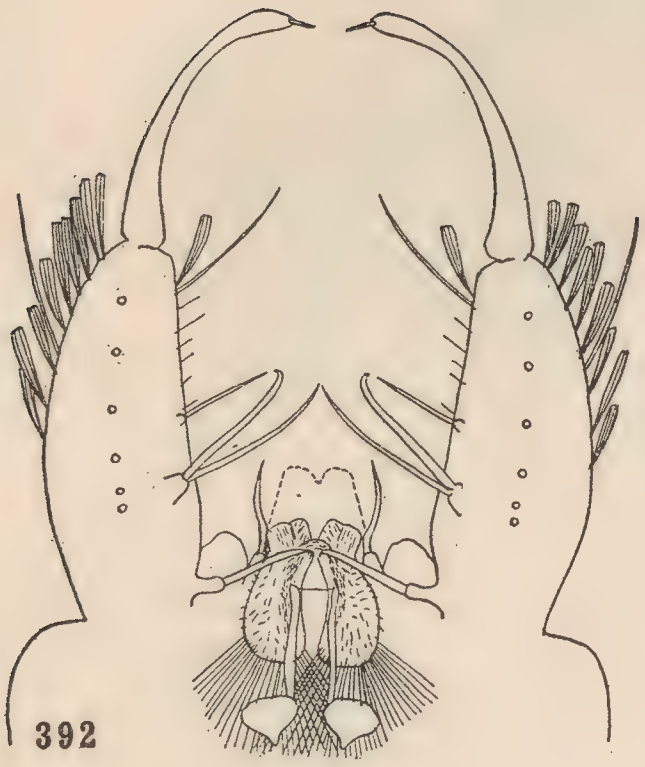
389. *Anopheles bonneæ* Root, male hypopygium and larva
390. *Anopheles albimanus* Wied., male hypopygium and larva
391. *Anopheles bachmanni* Petr., male hypopygium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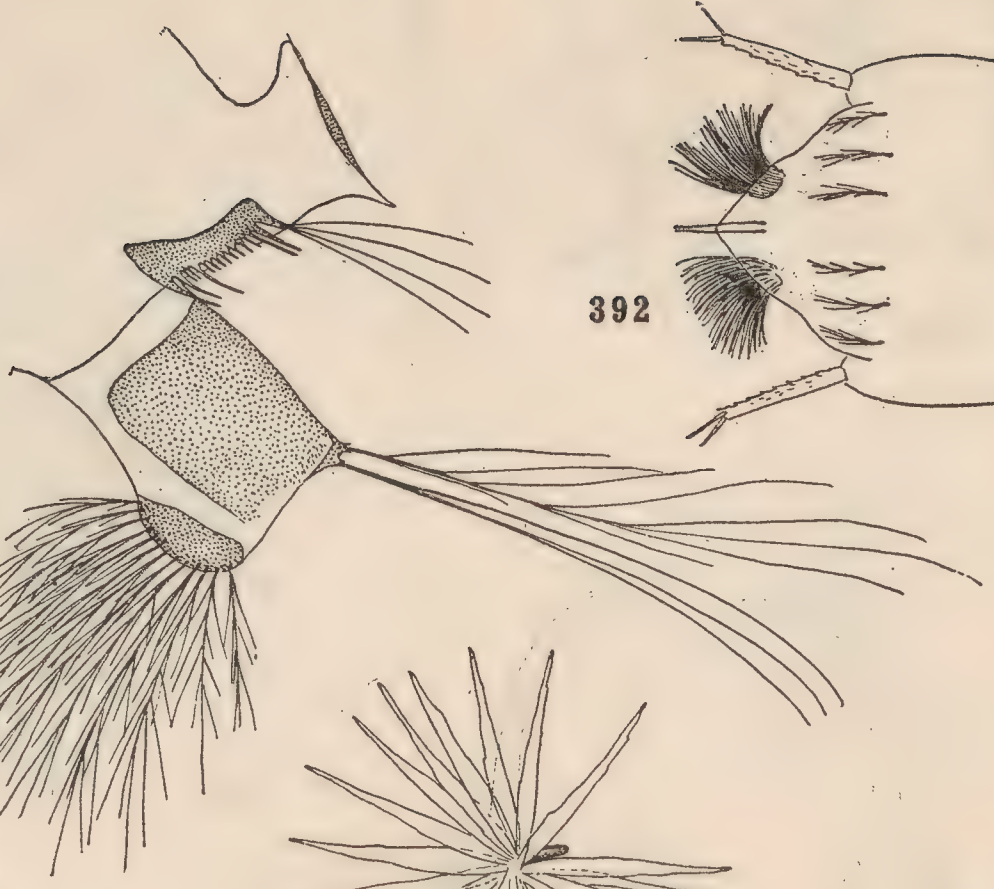
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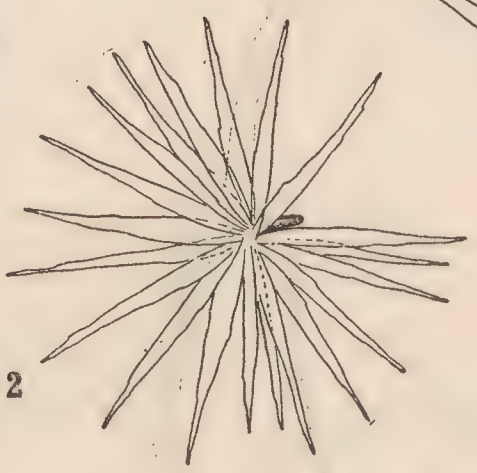
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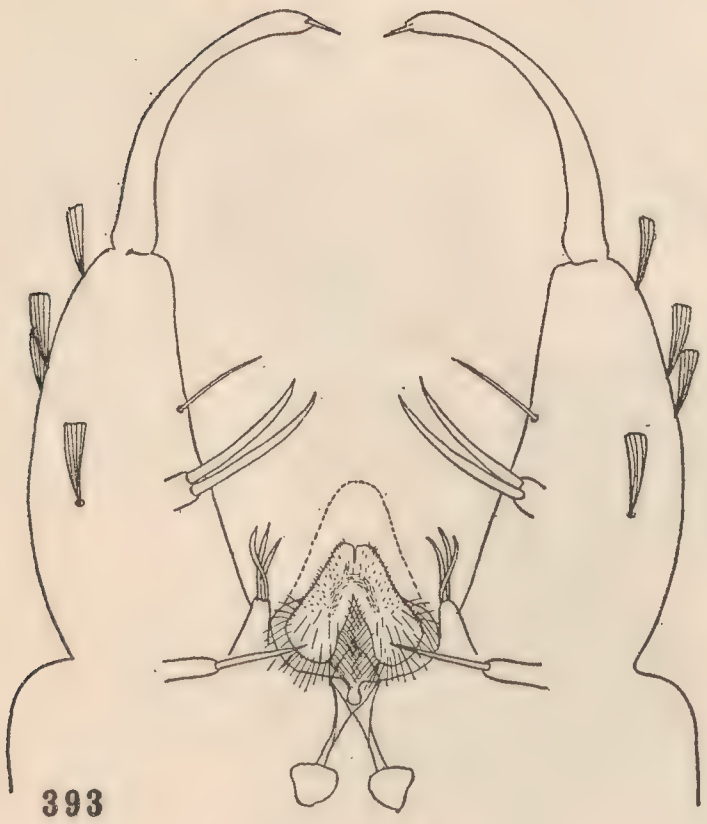
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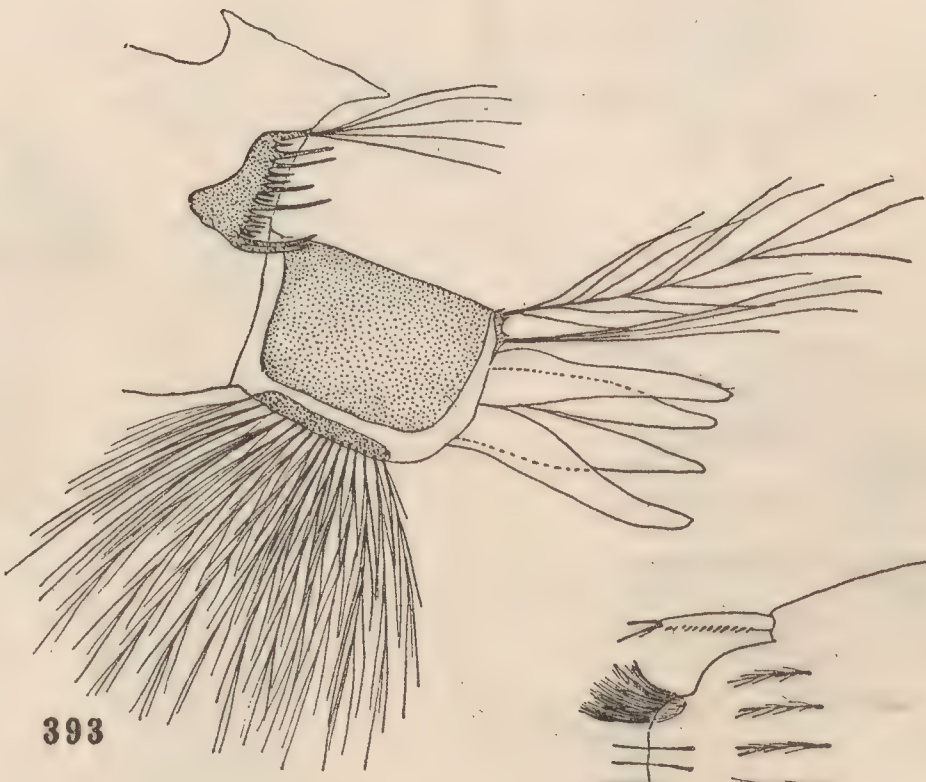
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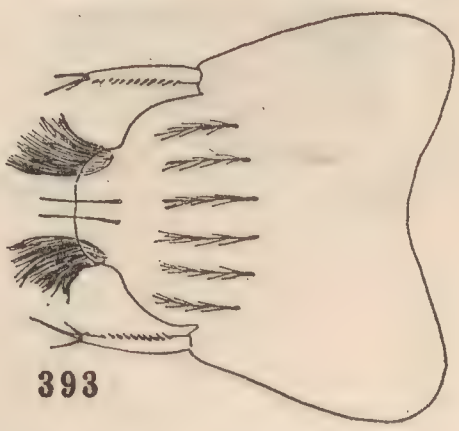
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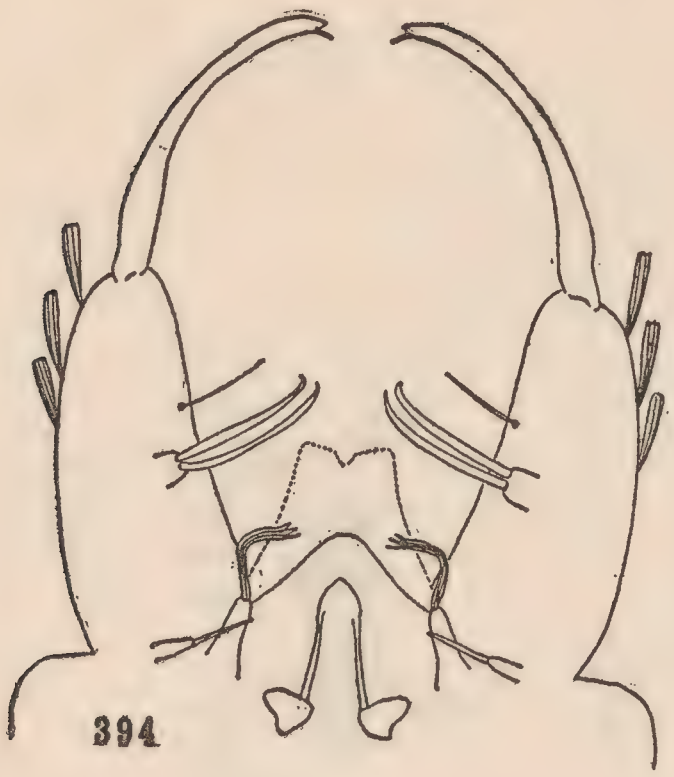
392. *Anopheles evansi* Brèthes (*strodei* Root), male hypopygium and larva
393. *Anopheles tarsimaculatus* Goeldi, male hypopygium and larva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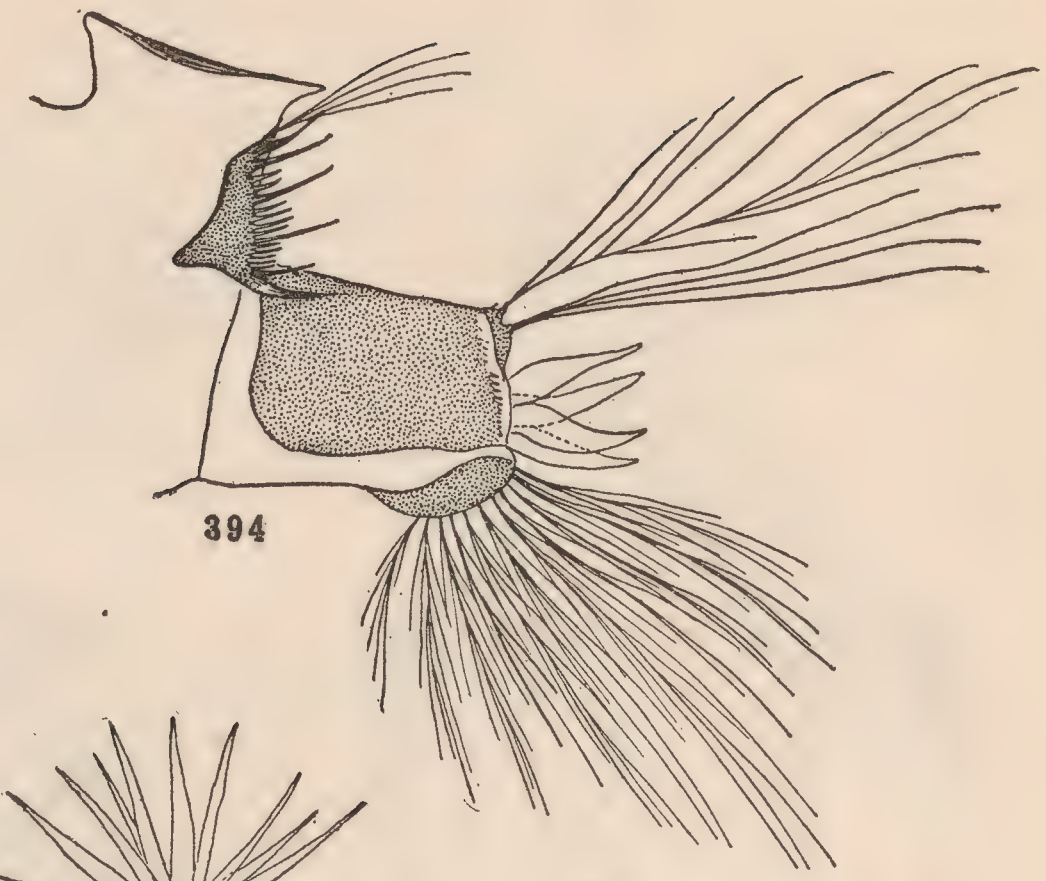
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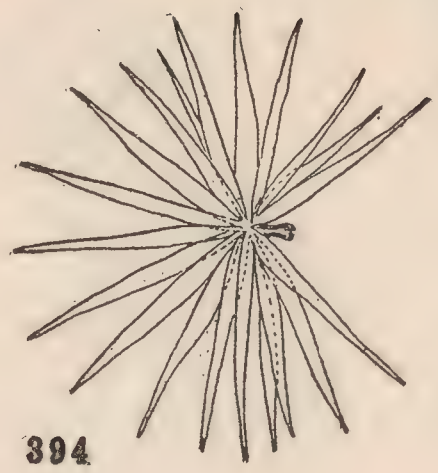
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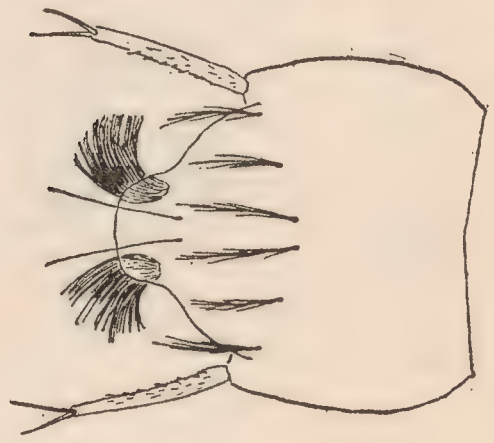
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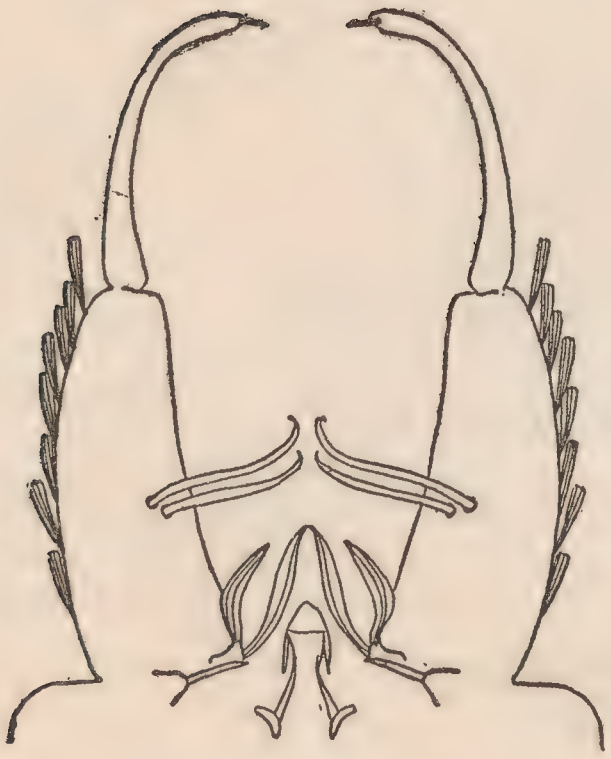
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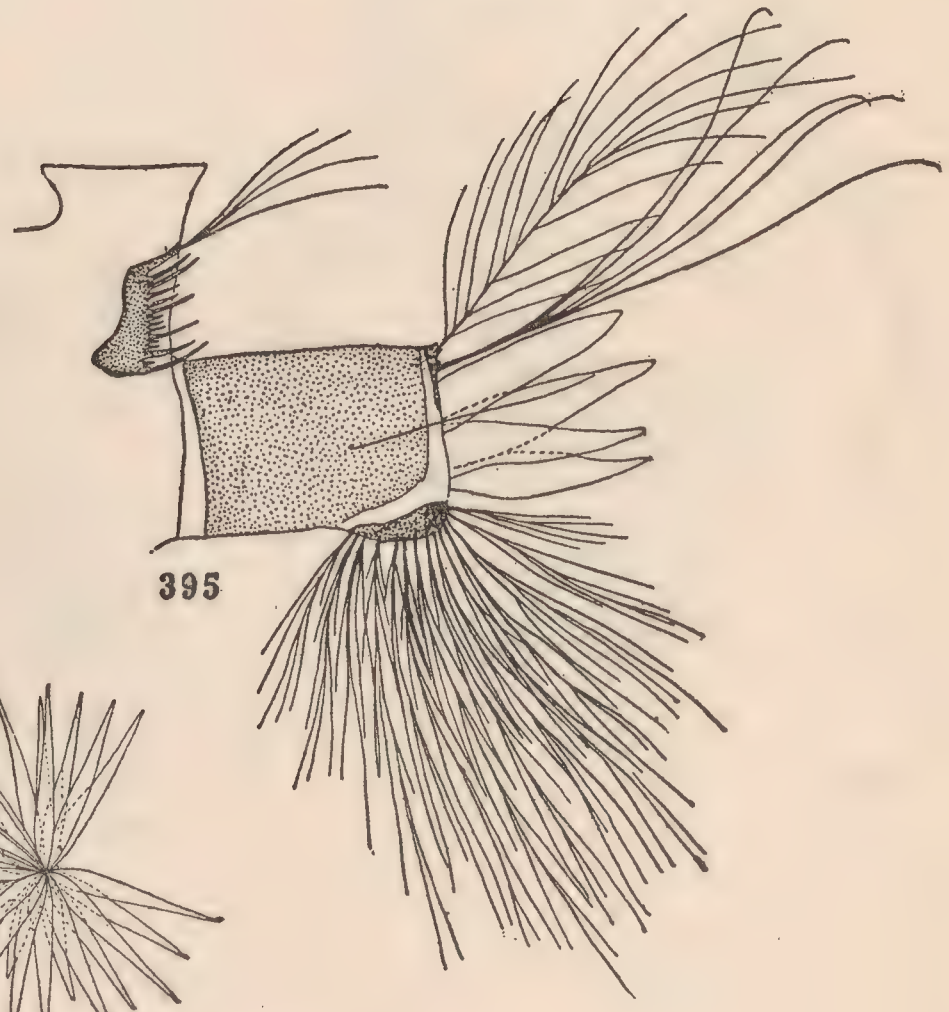
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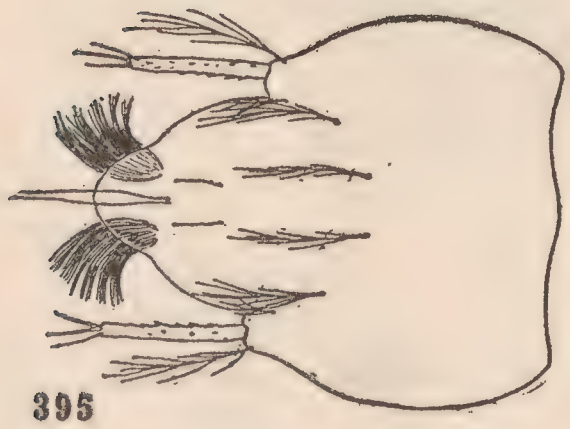
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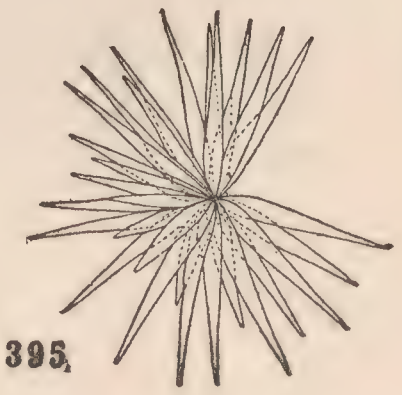
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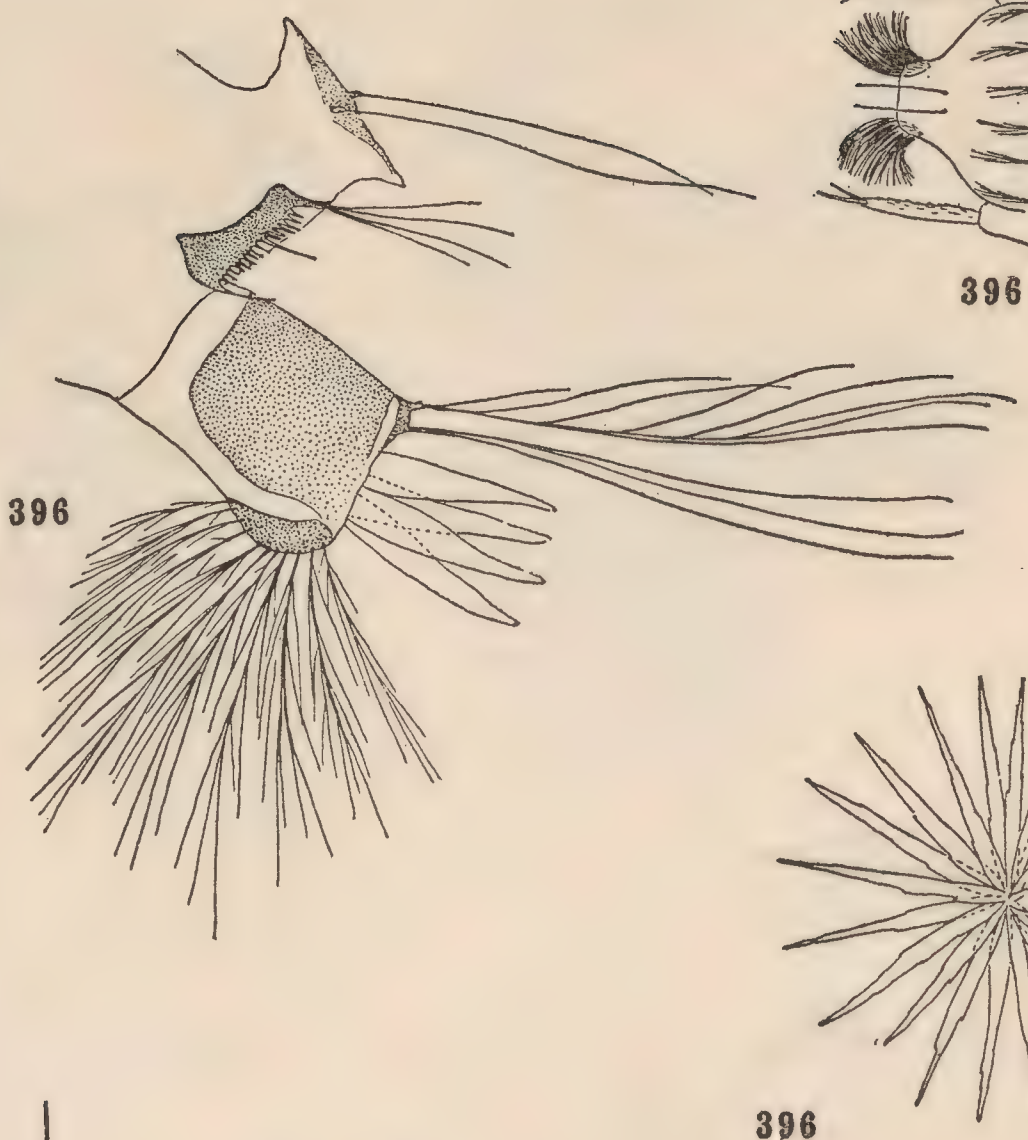
394. *Anopheles albitarsis* Lynch A., male hypopygium and larva
395. *Anopheles argyritarsis* R.-D., male hypopygium and larva

396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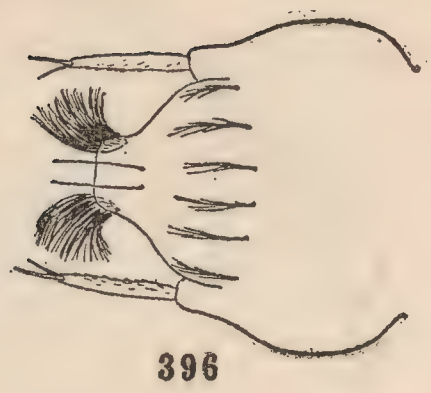
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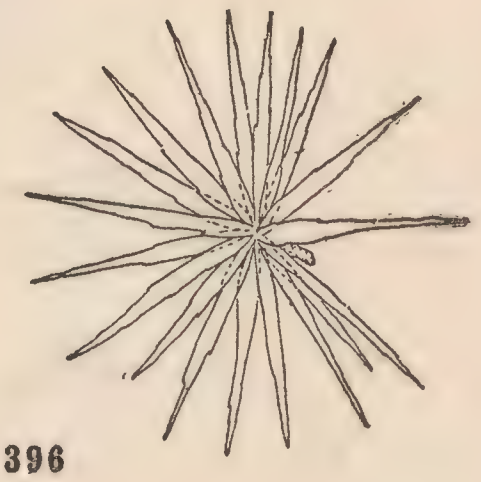
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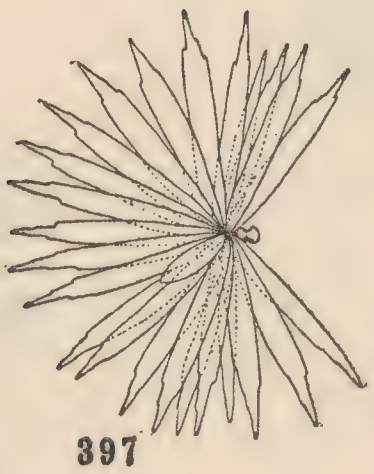
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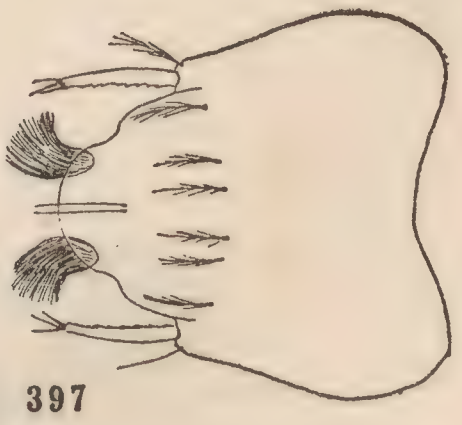
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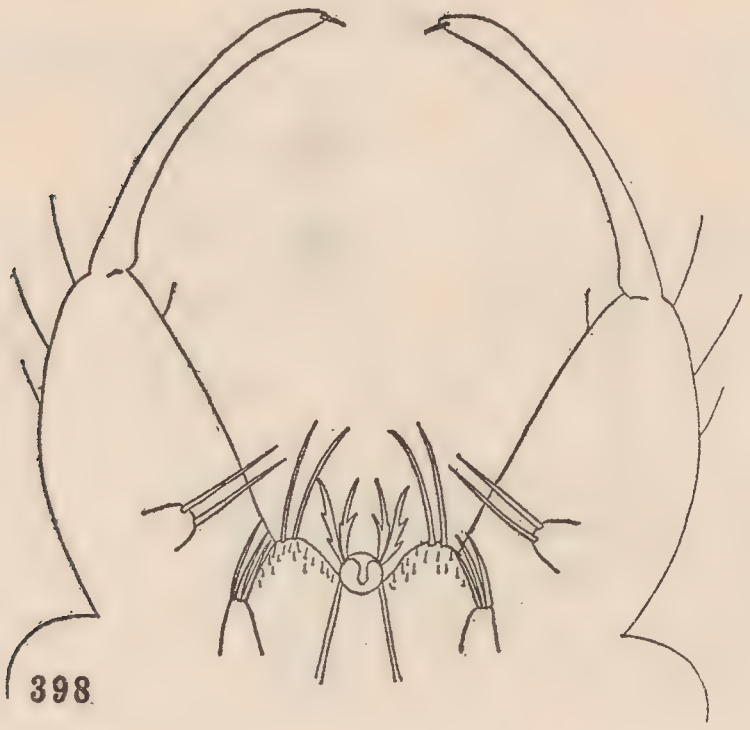
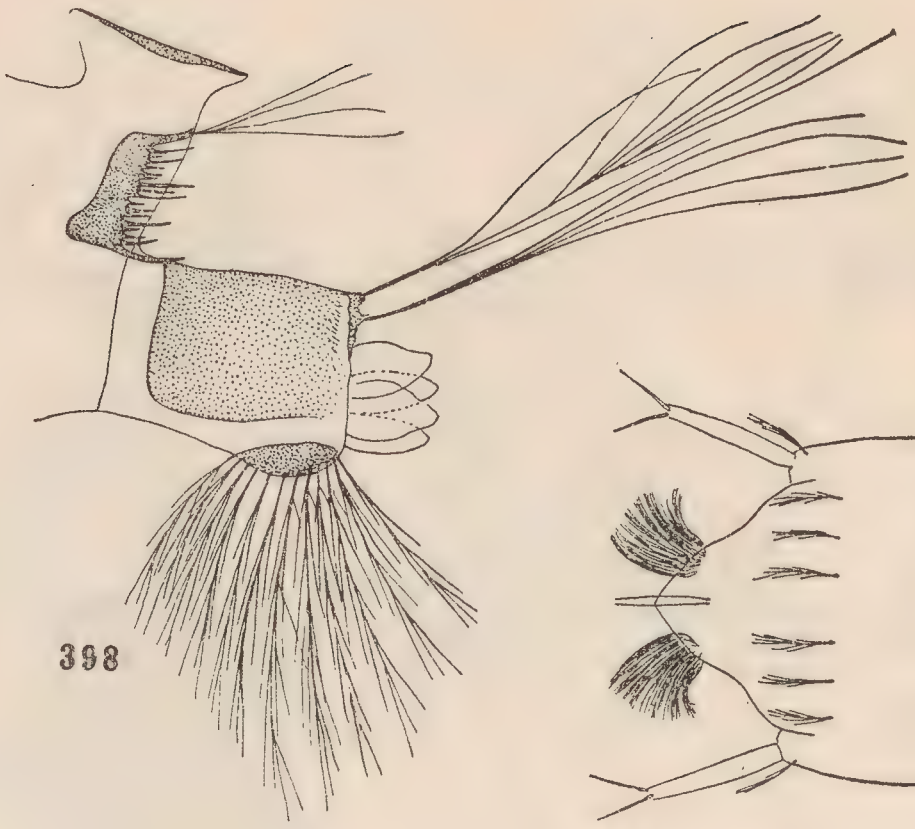
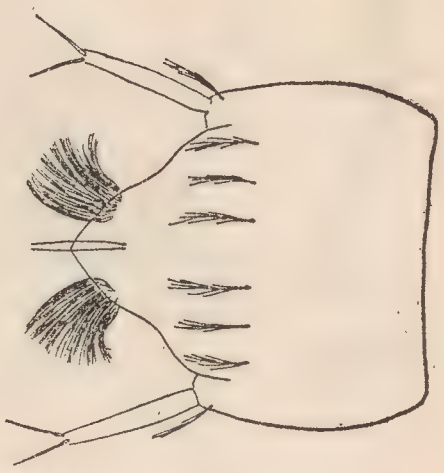
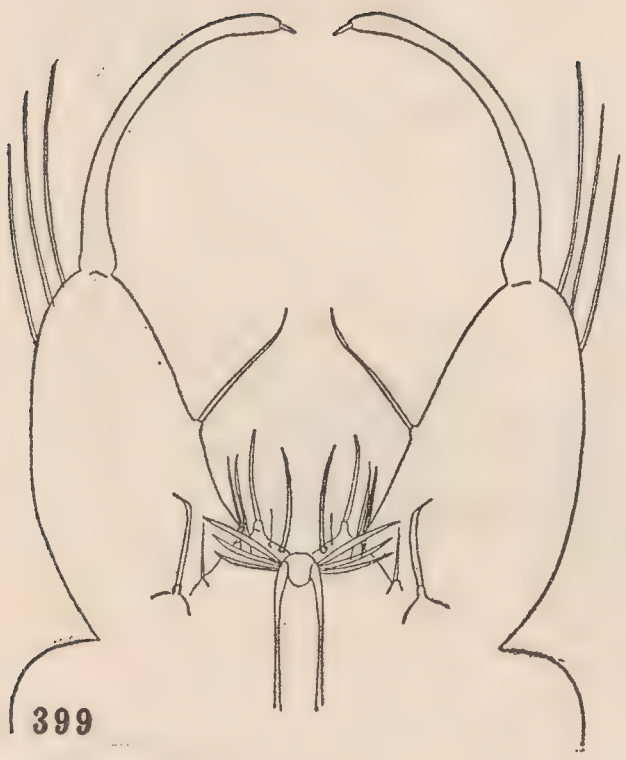
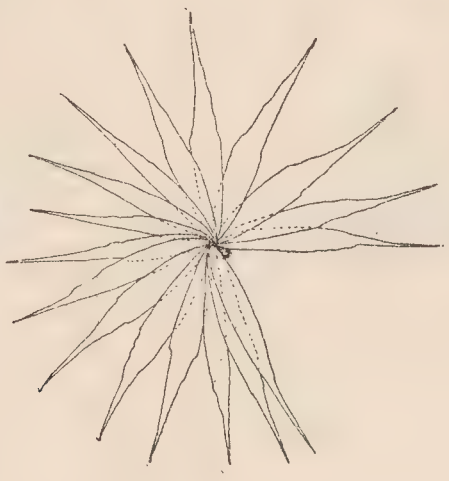
396. *Anopheles darlingi* Root, male hypopygium and larva
397. *Anopheles eiseni* Coq., male hypopygium and larva

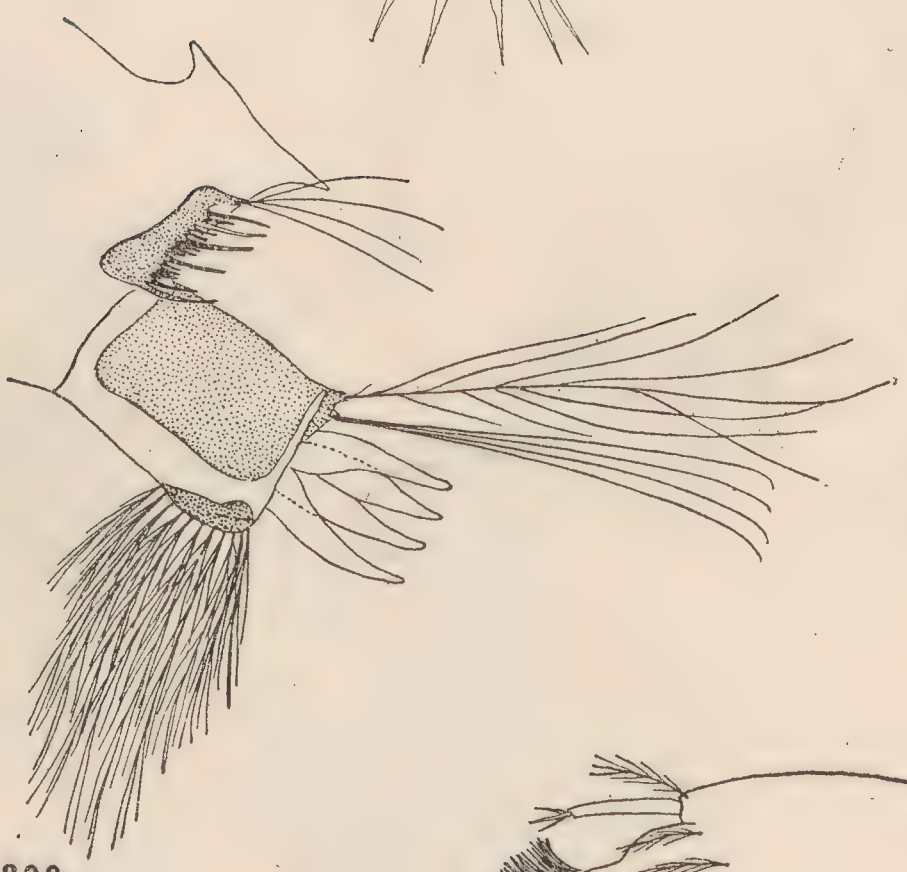


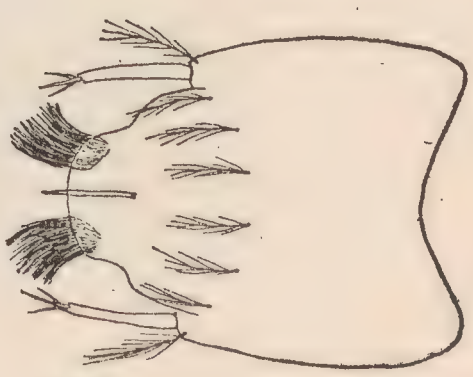












398. *Anopheles pseudopunctipennis* Theob., male hypopygium and larva
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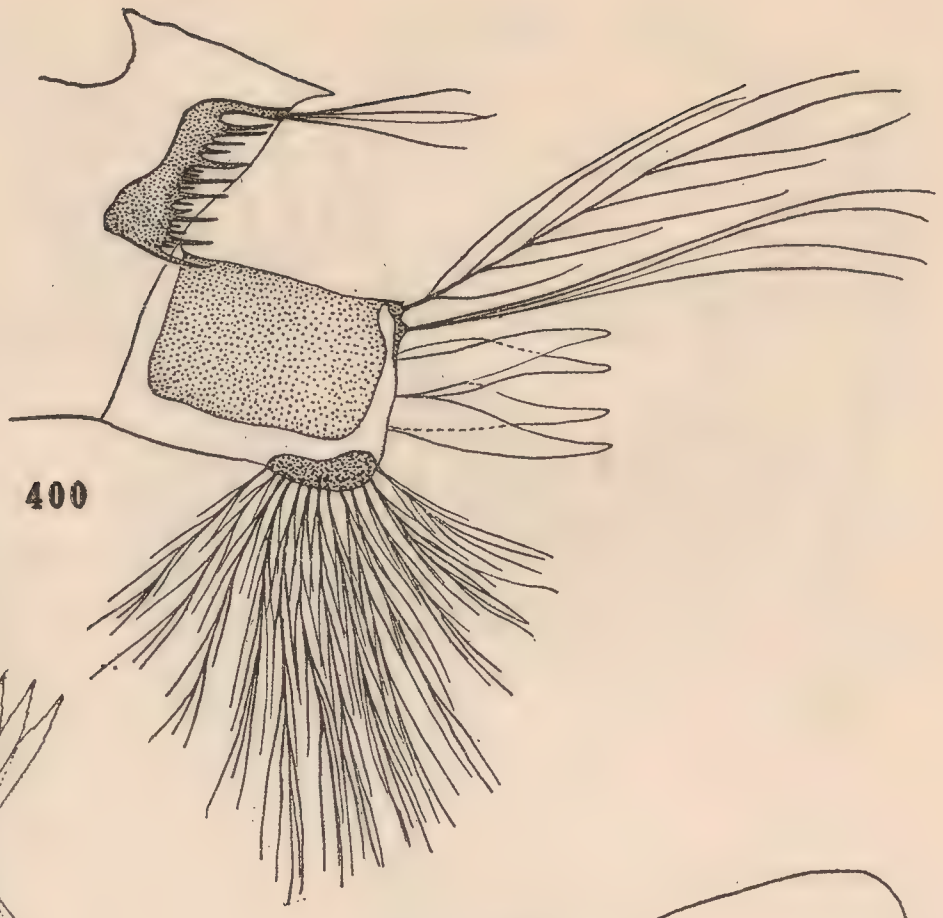
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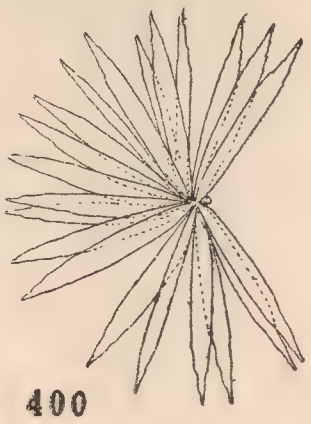
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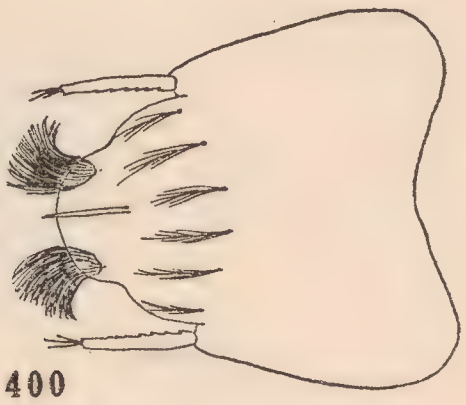
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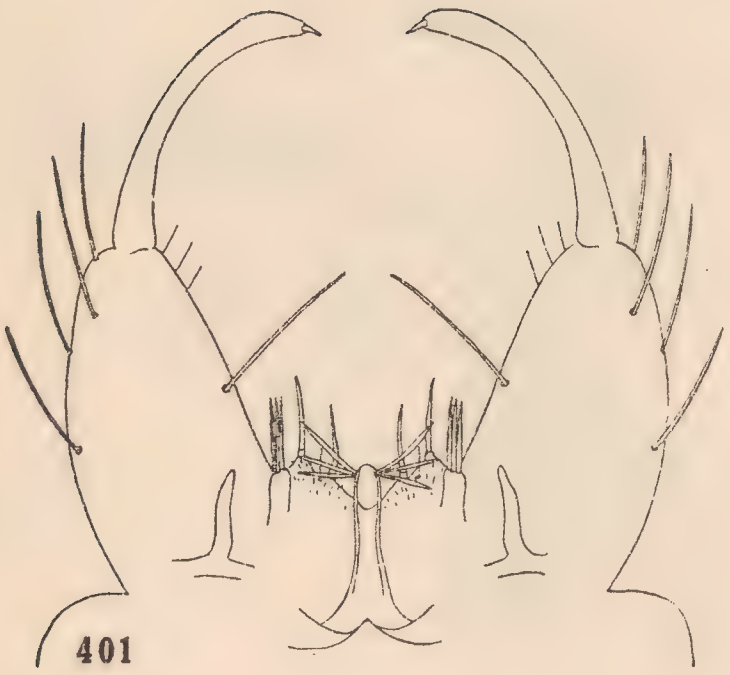
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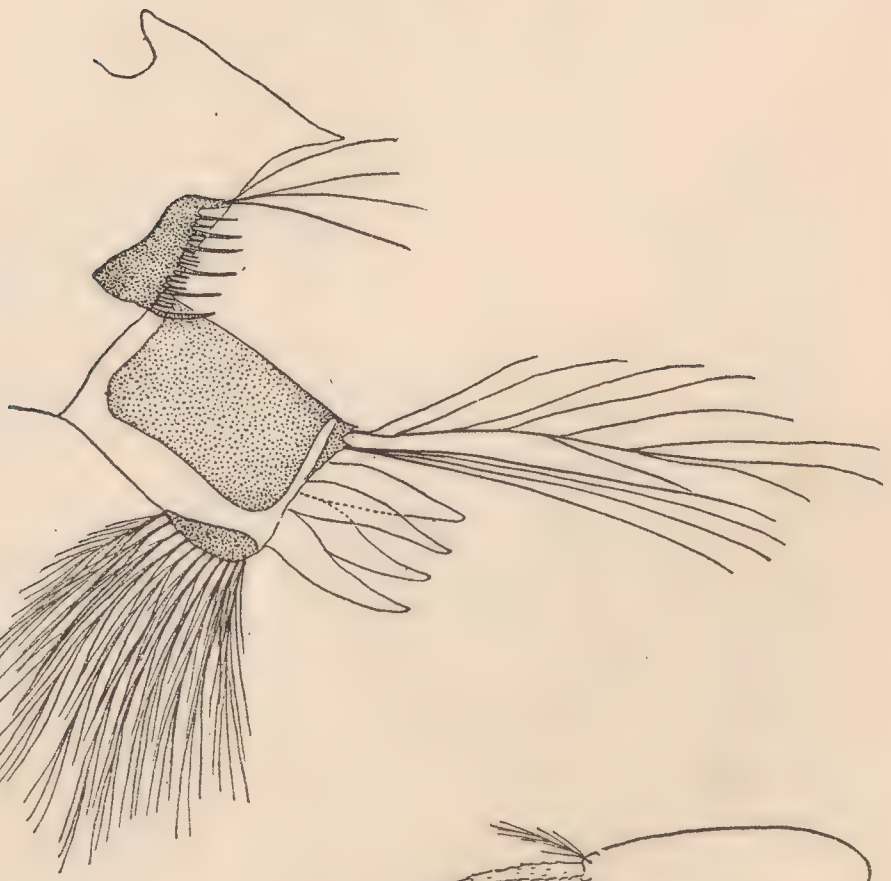
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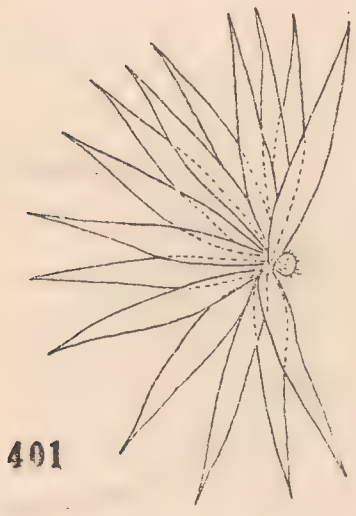
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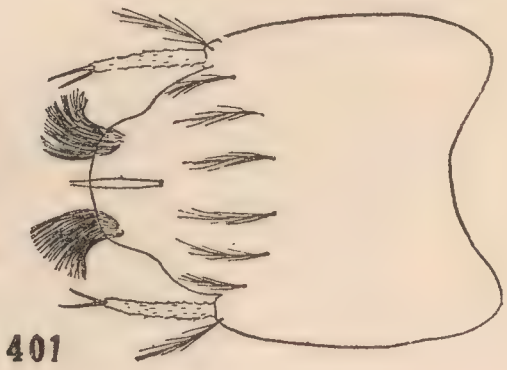
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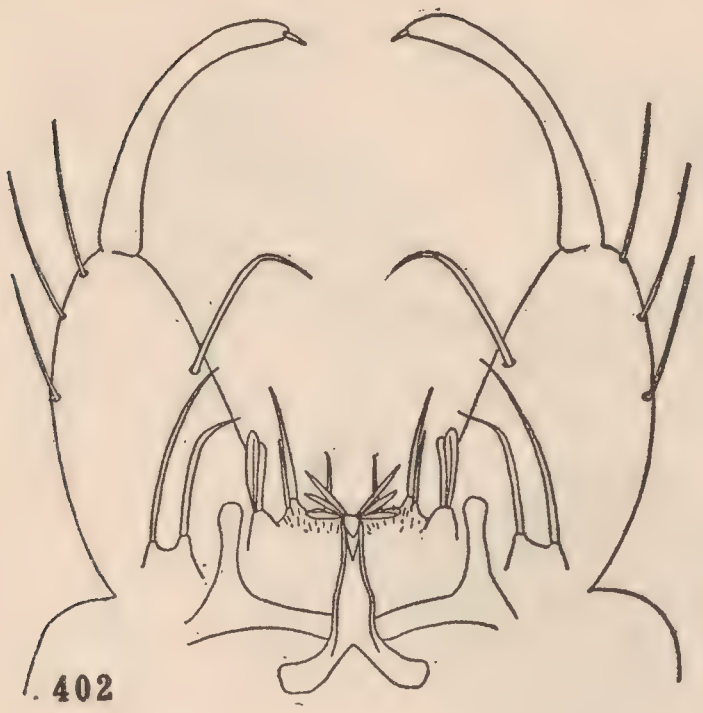
400. *Anopheles crucians* Wied., male hypopygium and larva
401. *Anopheles maculipennis* Meig., male hypopygium and larva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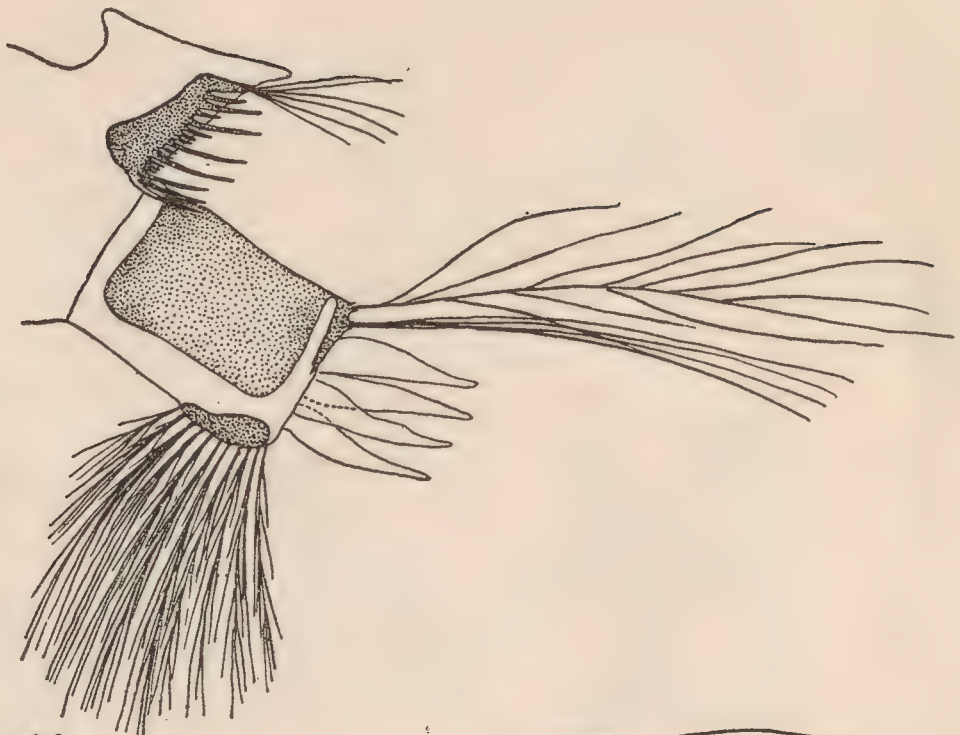
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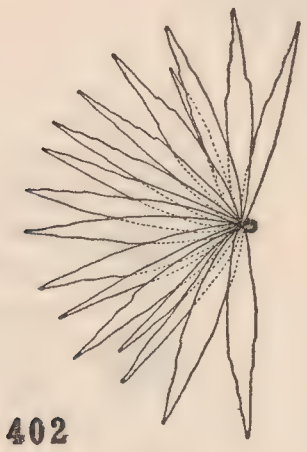
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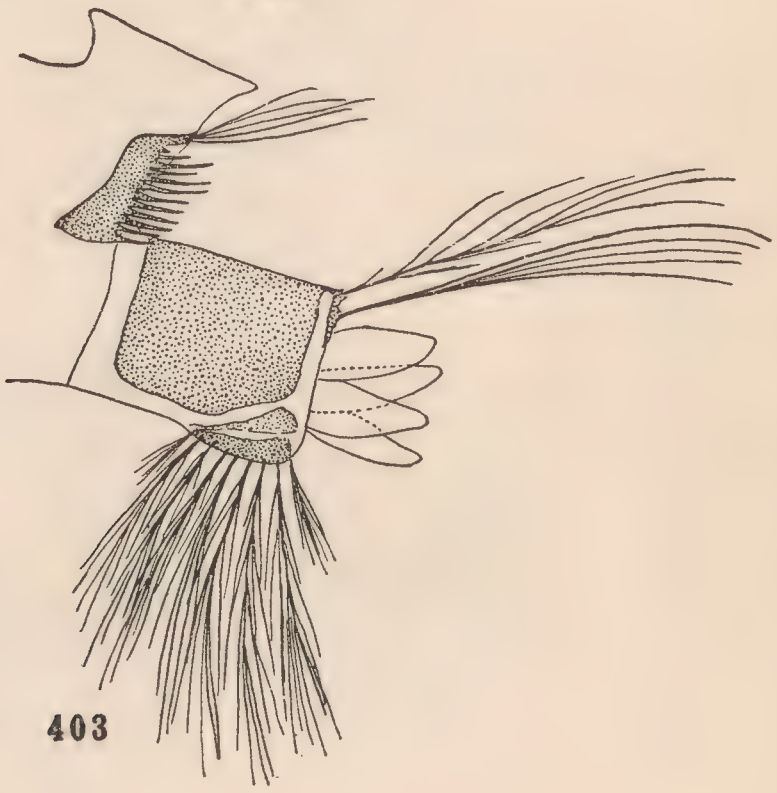
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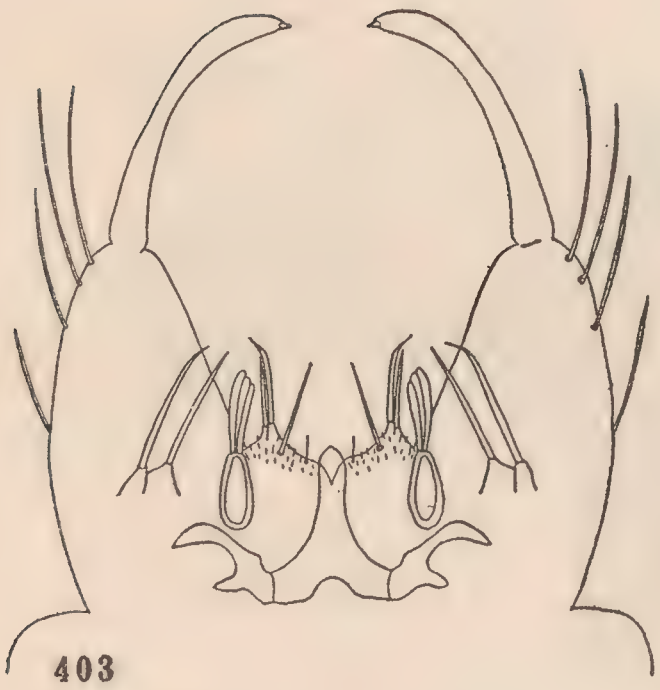
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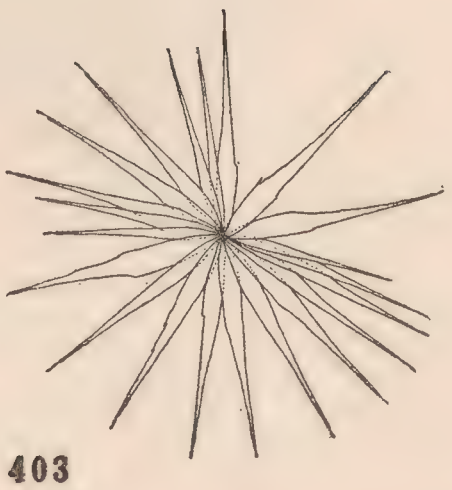
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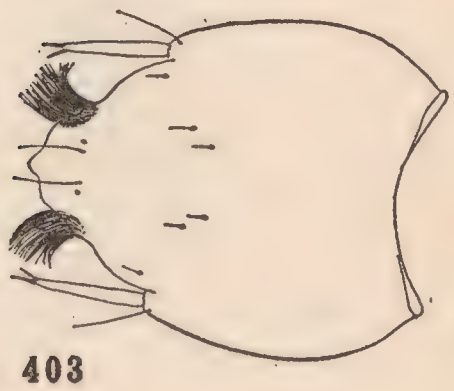
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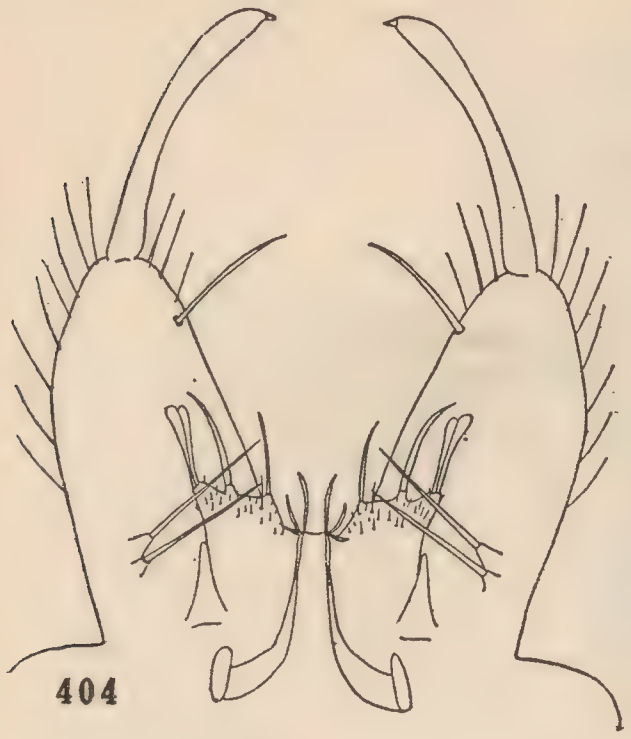
402. *Anopheles quadrimaculatus* Say, male hypopygium and larva
403. *Anopheles barberi* Coq., male hypopygium and larva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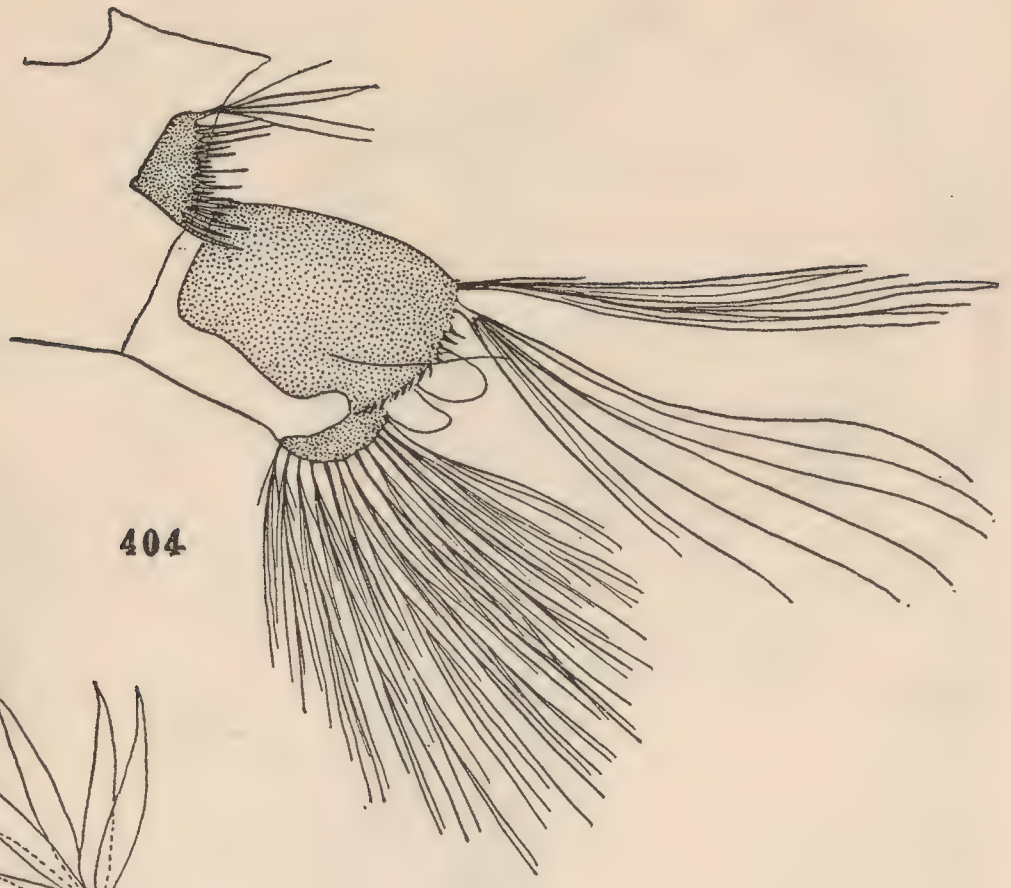
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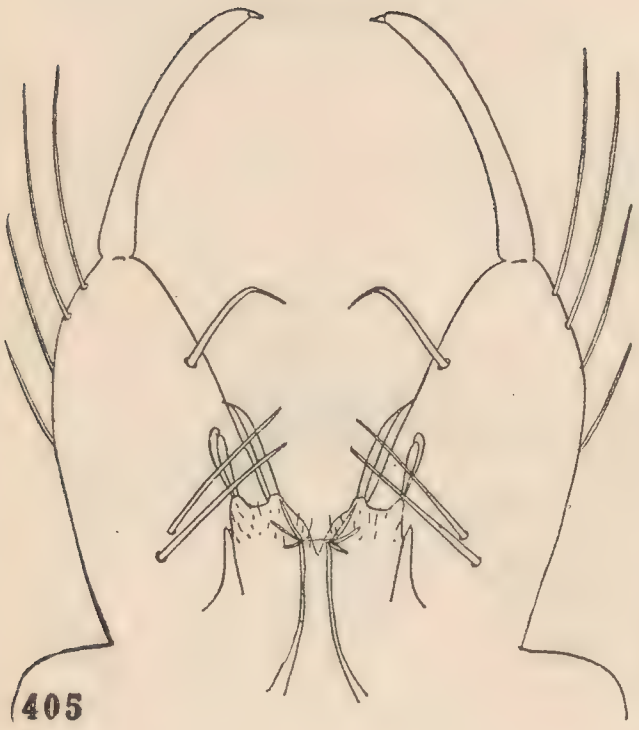
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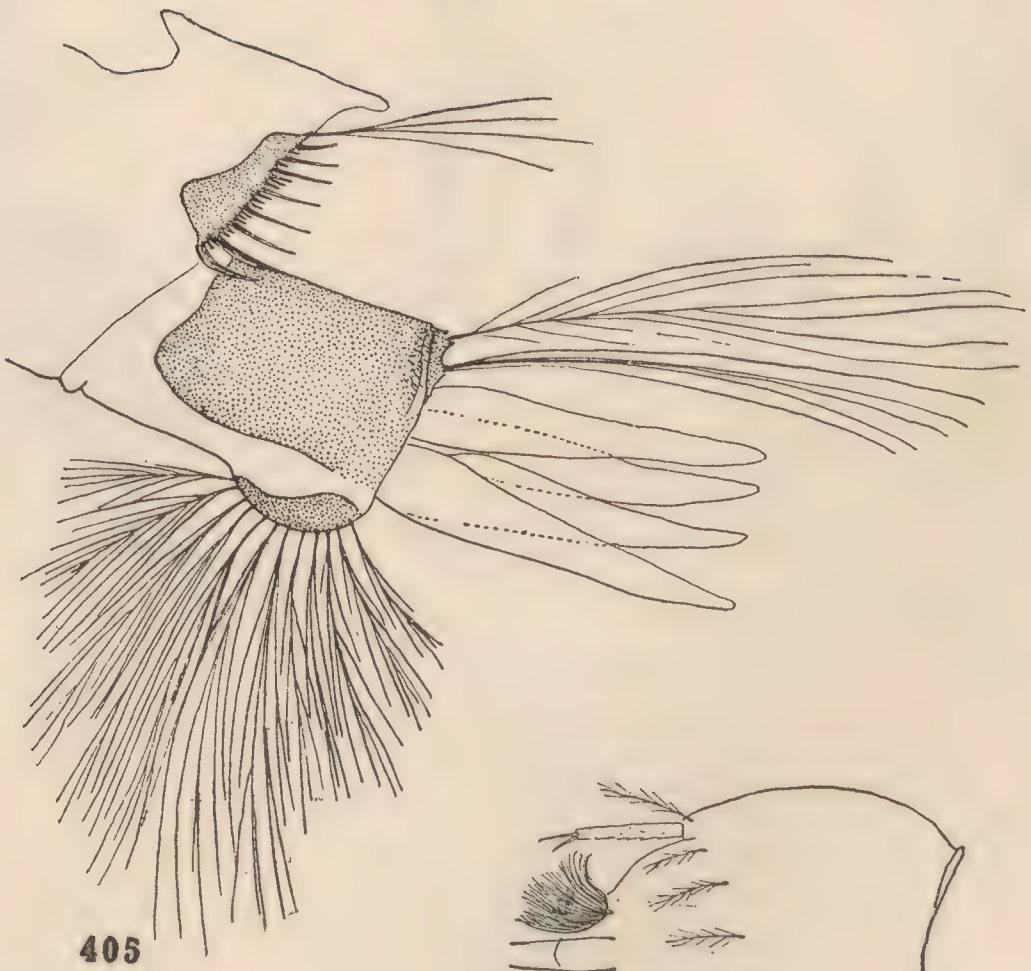
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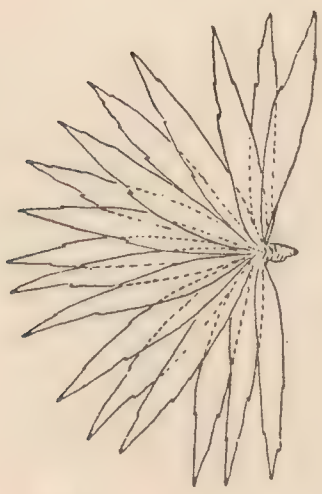
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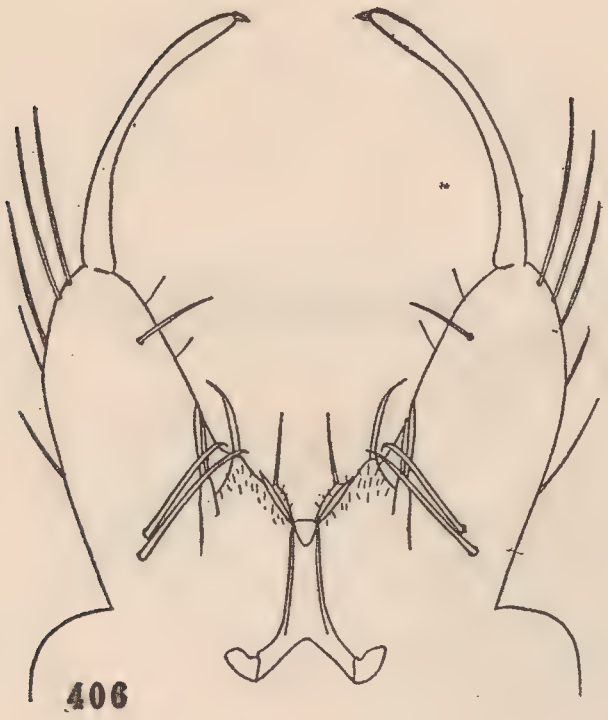
405. *Anopheles walkeri* Theob., male hypopygium and larva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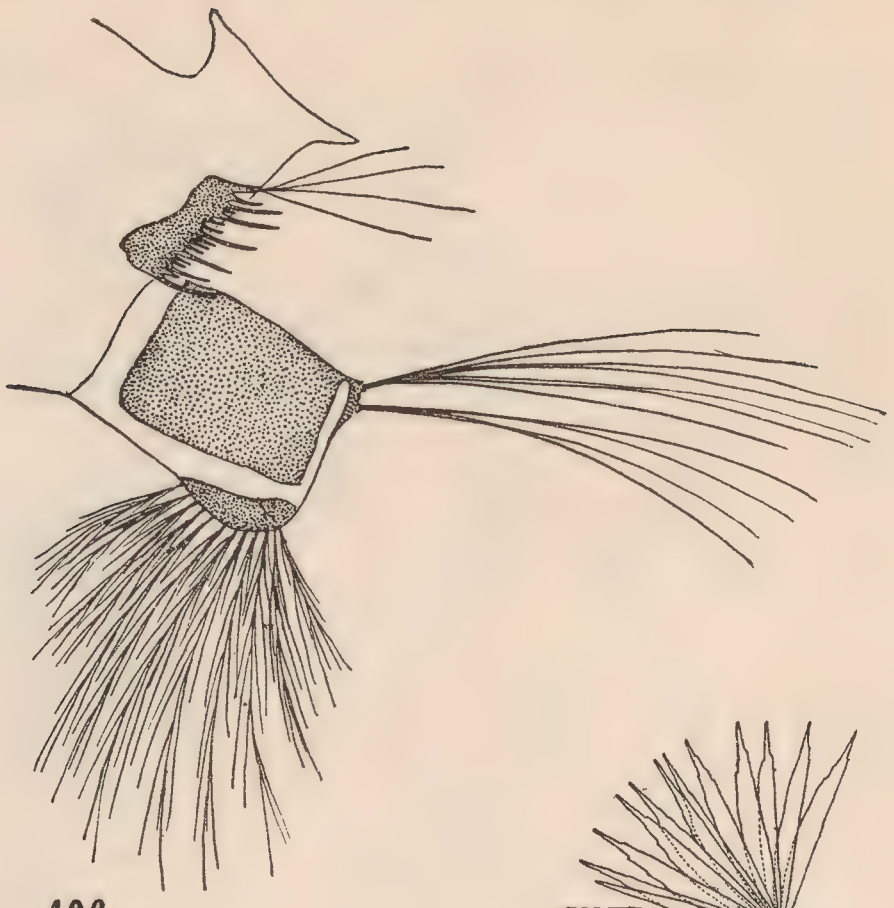
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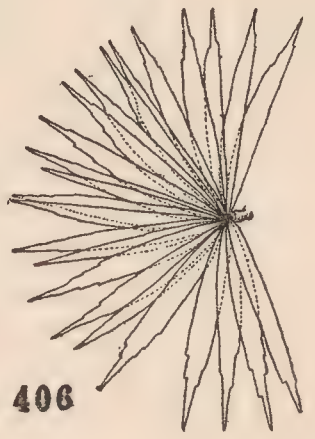
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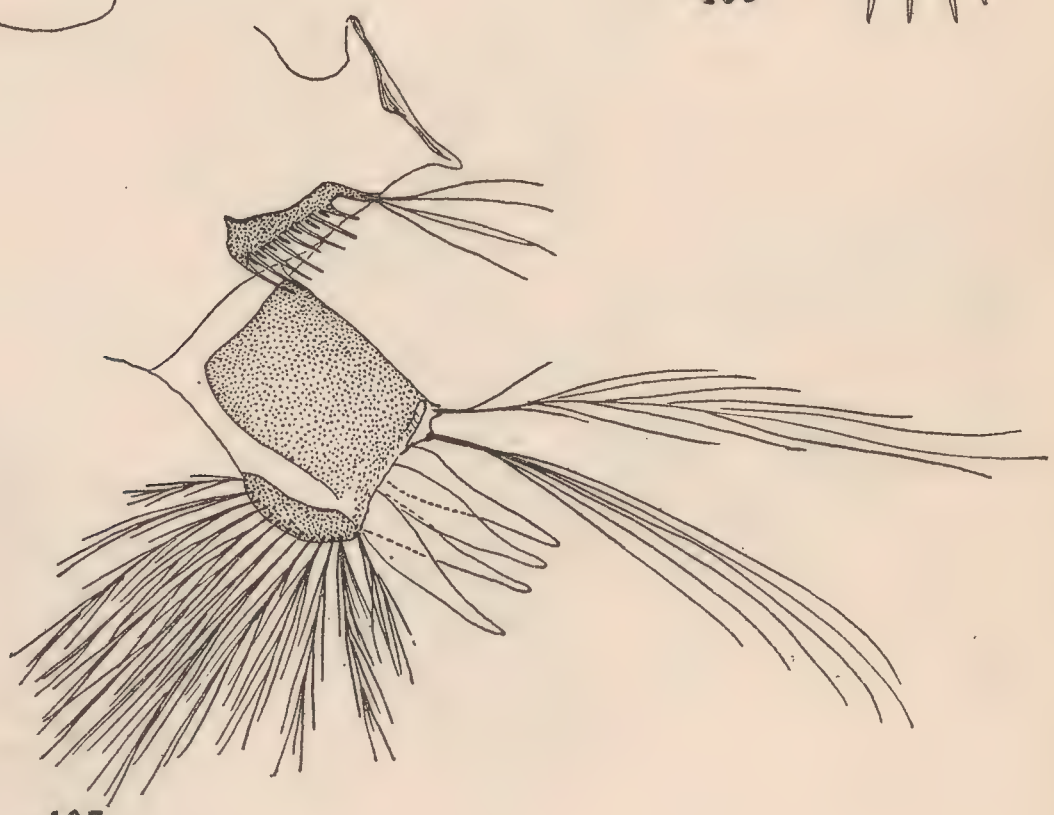
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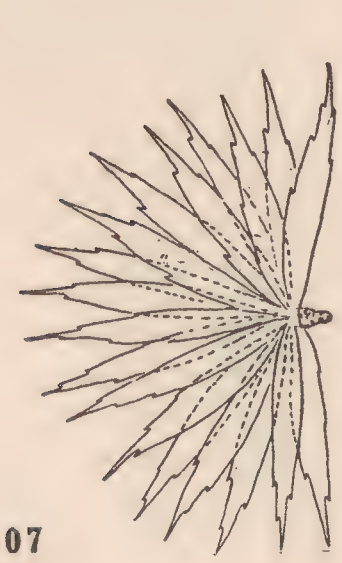
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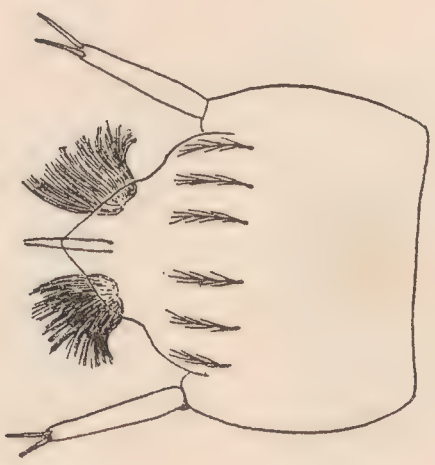
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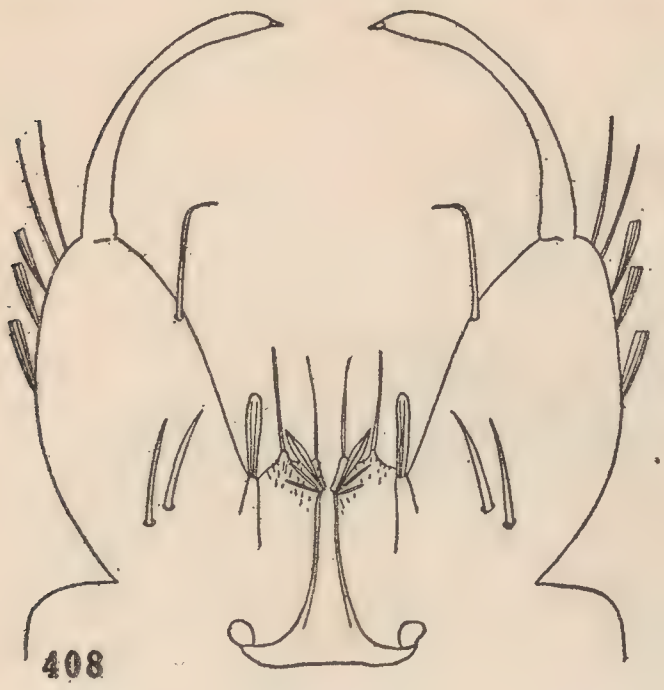
406. *Anopheles grabhamii* Theob., male hypopygium and larva
407. *Anopheles vestitipennis* D. and K., male hypopygium and larva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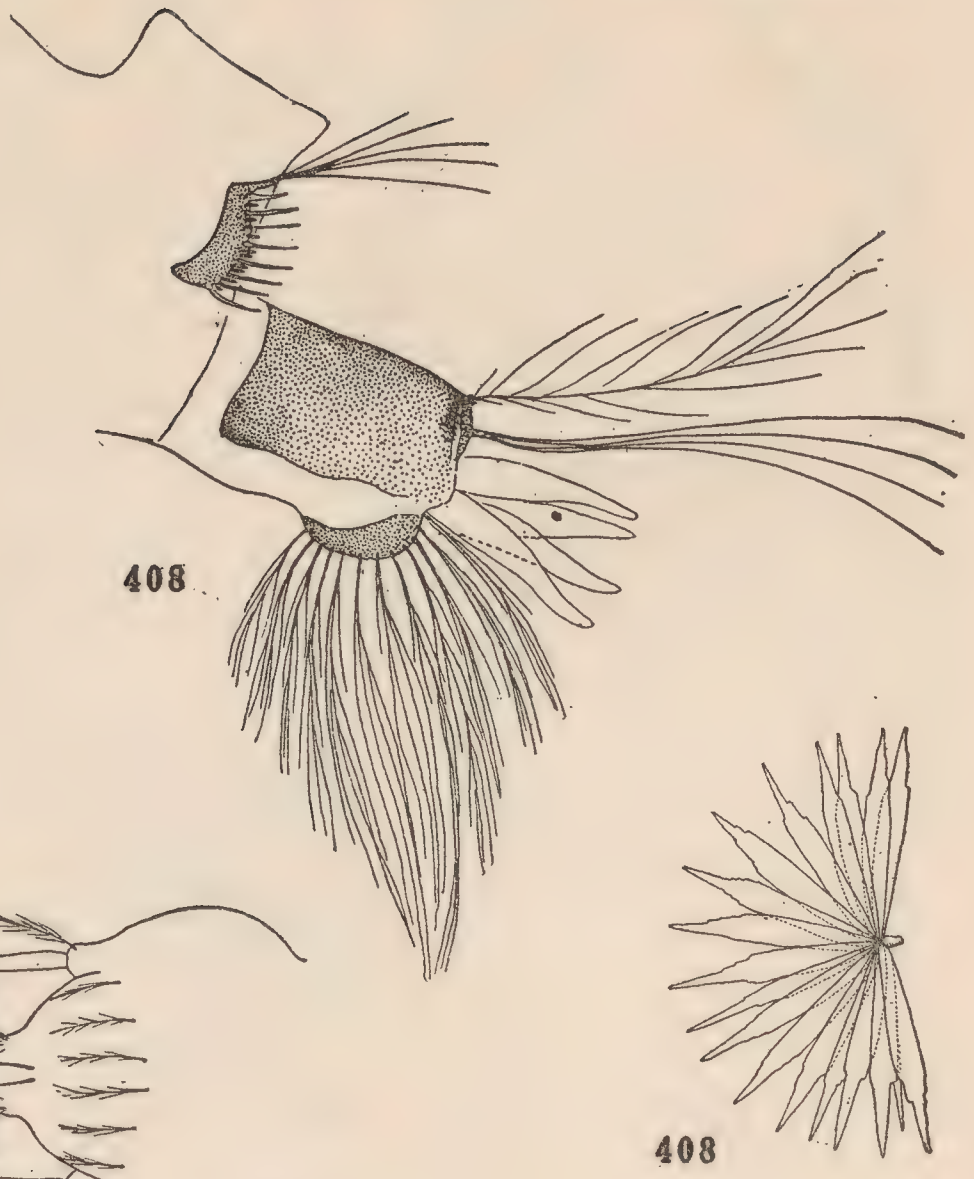
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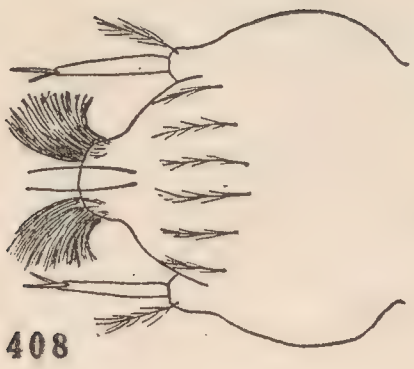
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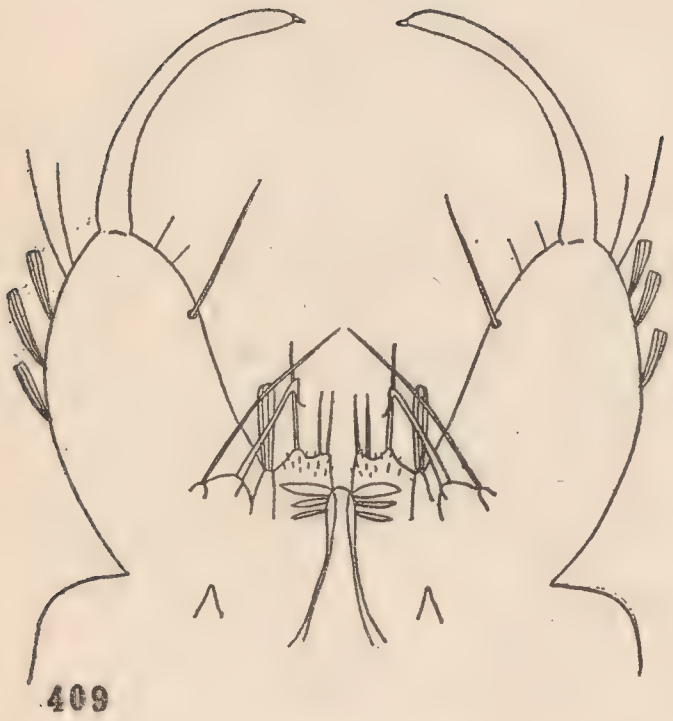
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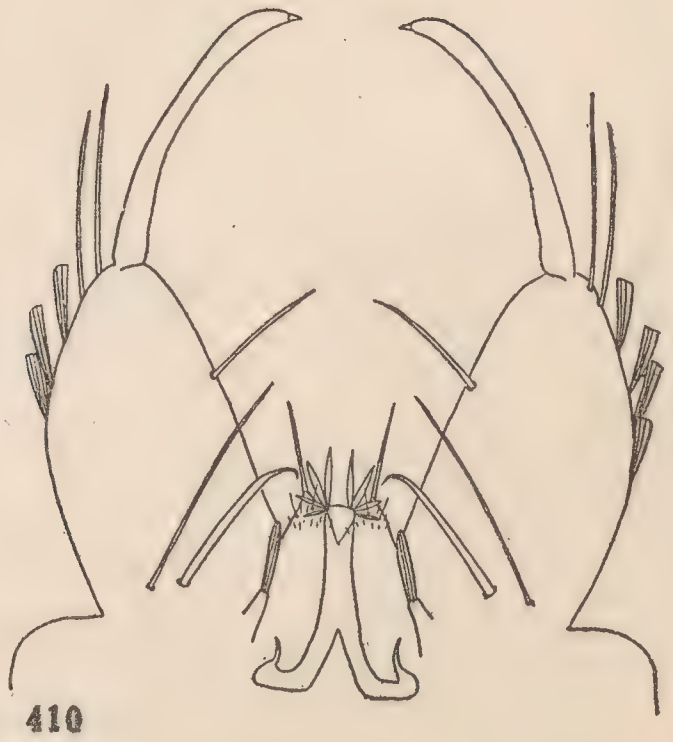
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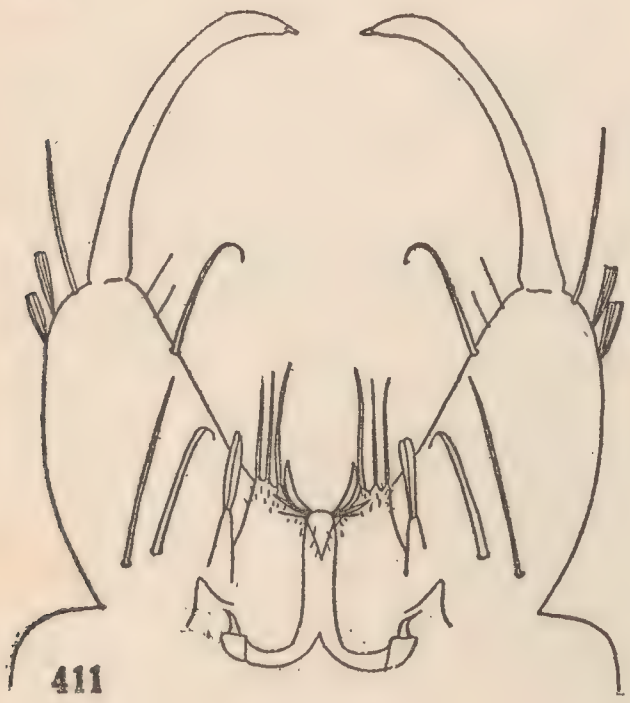
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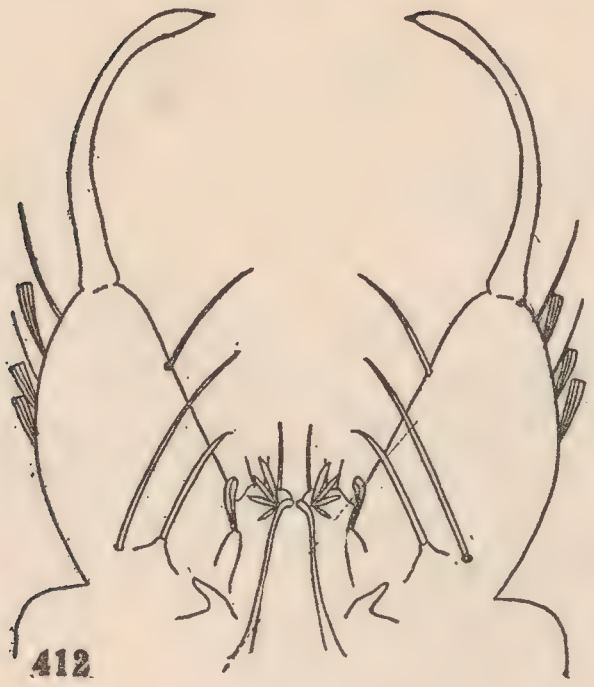
408. *Anopheles punctimacula* D. and K., male hypopygium and larva
409. *Anopheles intermedius* Pery., male hypopygium
410. *Anopheles fluminensis* Root, male hypopygium
411. *Anopheles maculipes* Theob. (?), male hypopygium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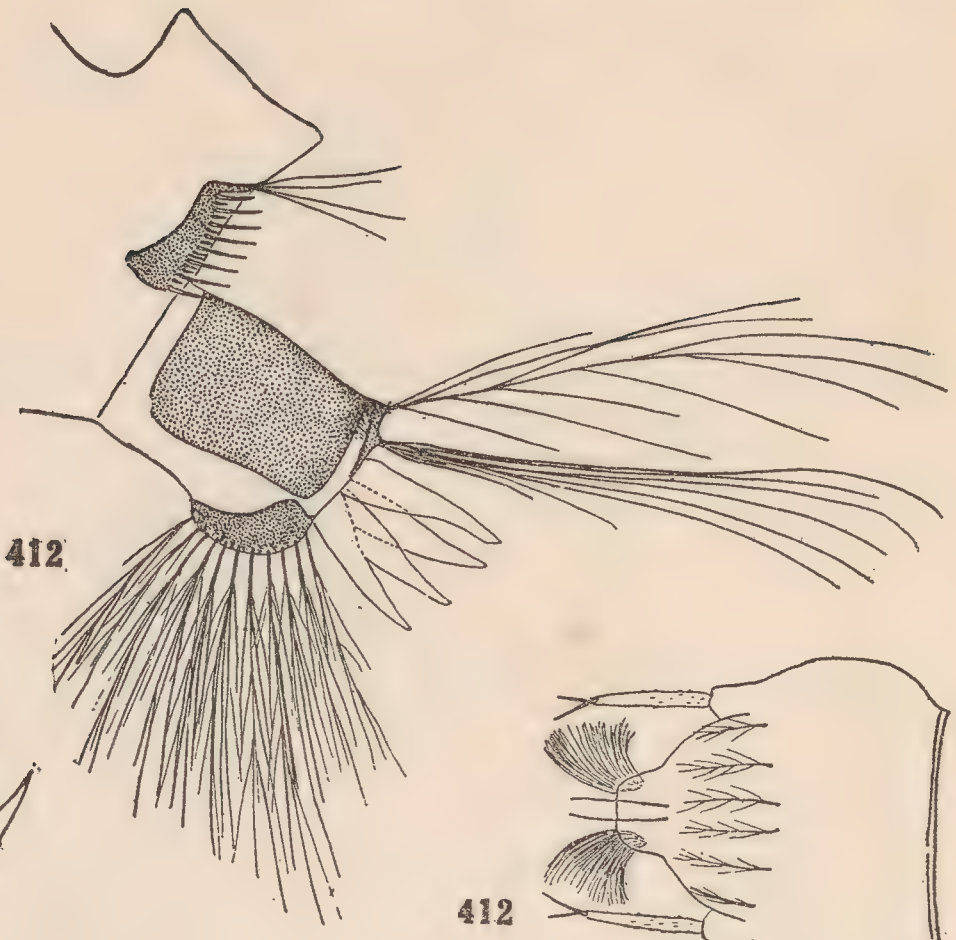
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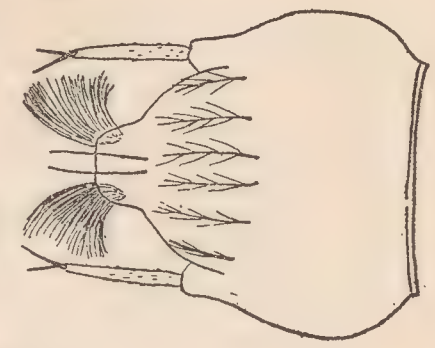
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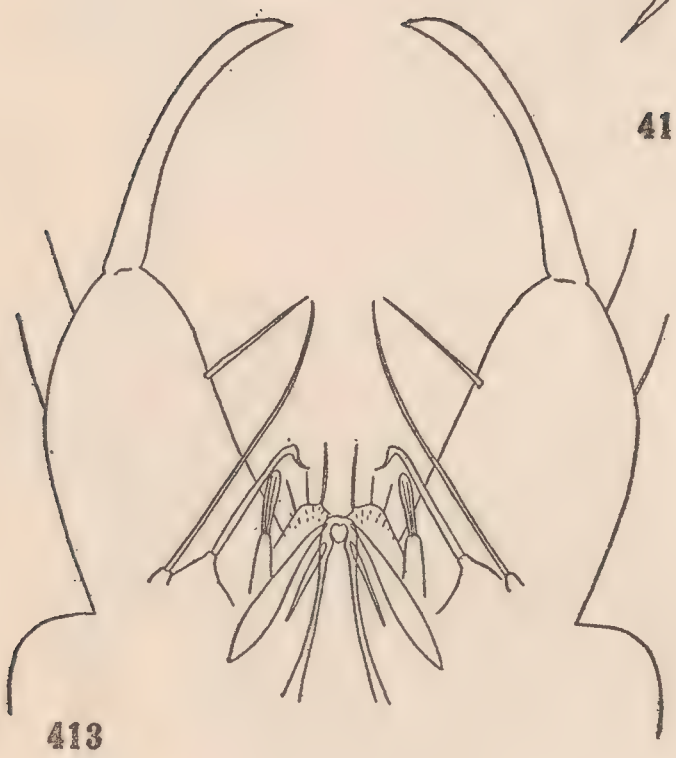
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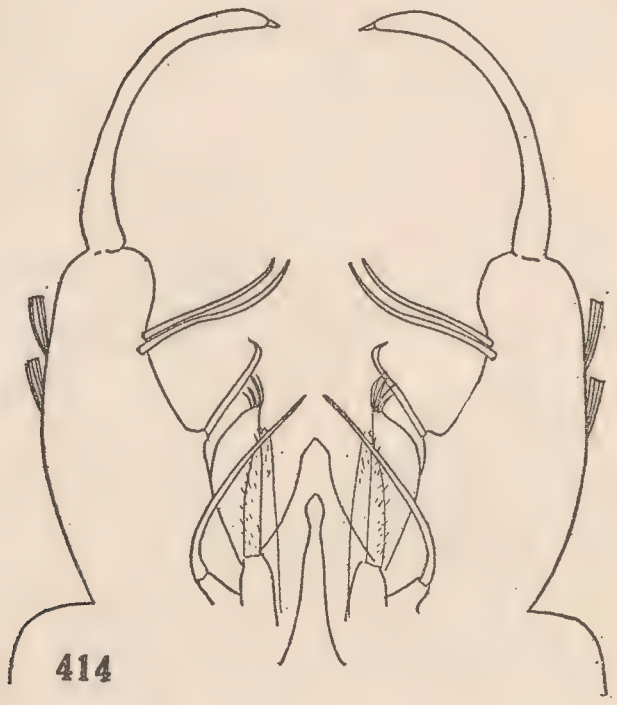
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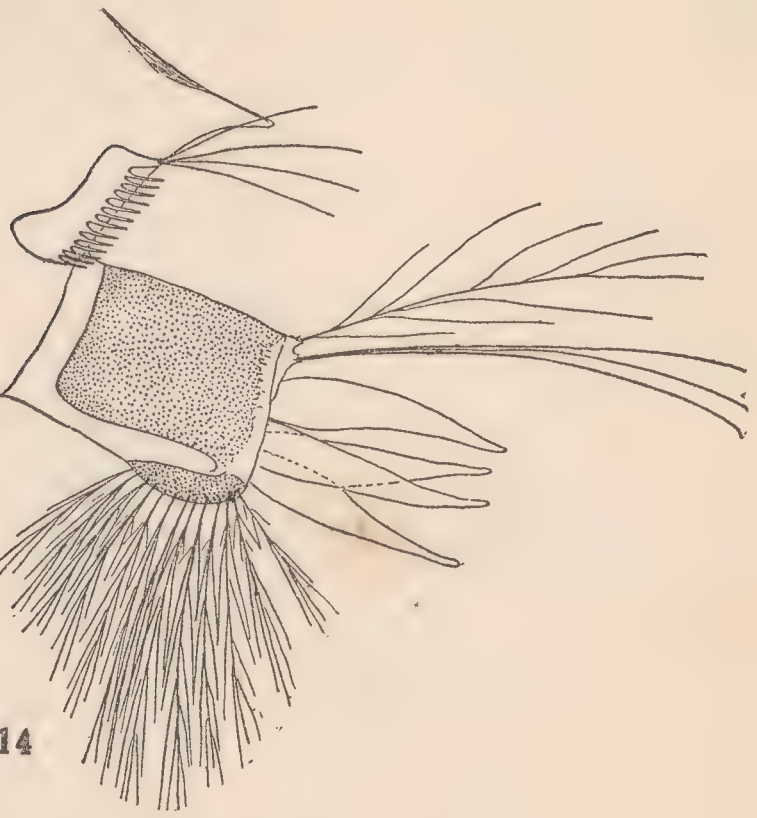
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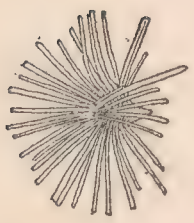
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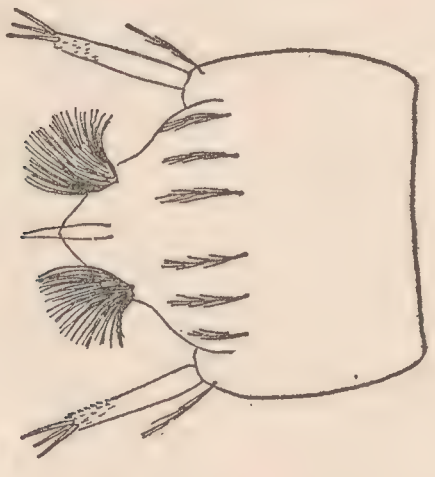
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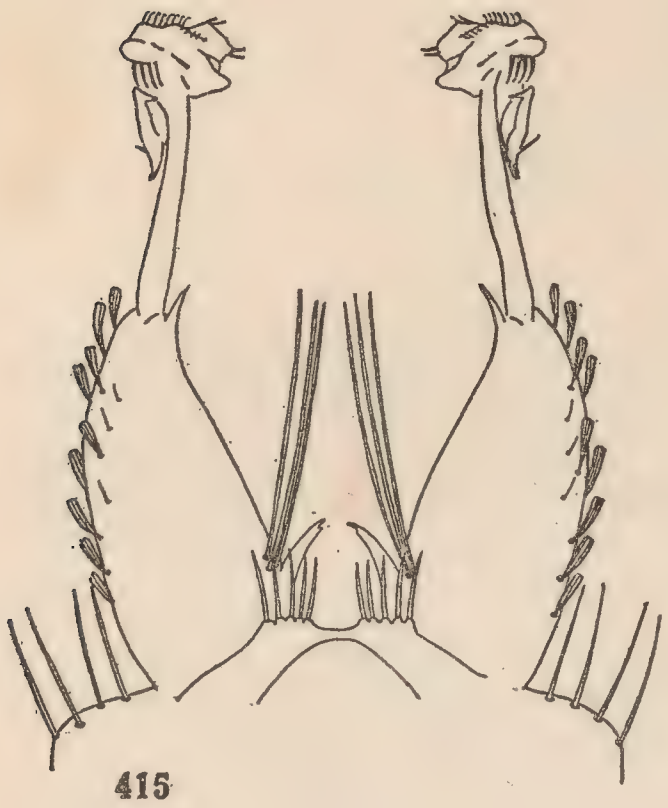
412. *Anopheles apicimacula* D. and K., male hypopygium and larva
413. *Anopheles pseudomaculipes* Pery., male hypopygium
414. *Anopheles cruzii* D. and K., male hypopygium and larva



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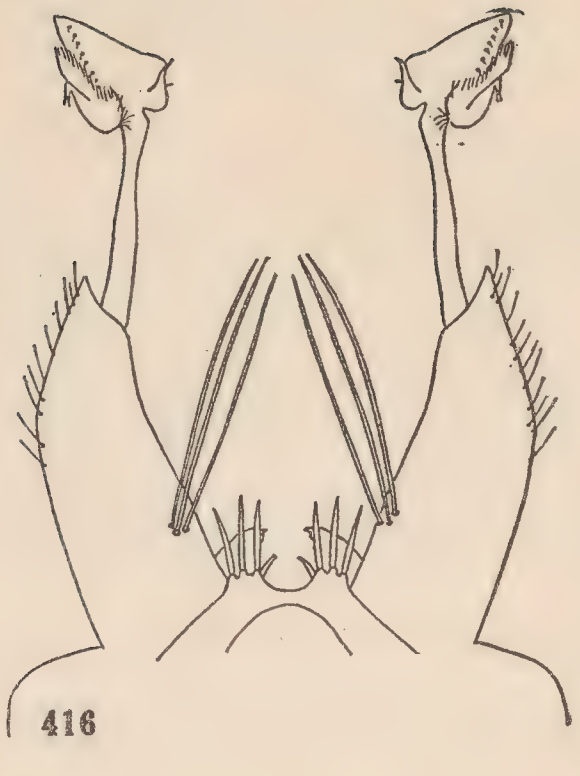

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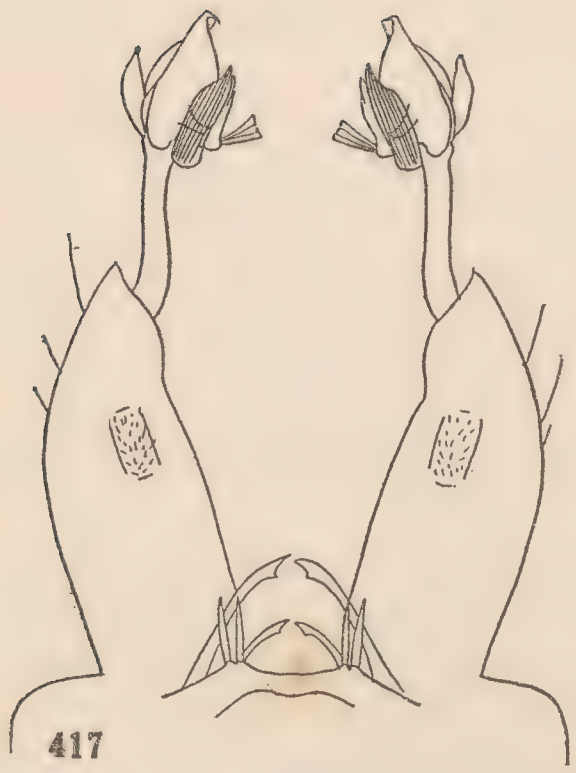

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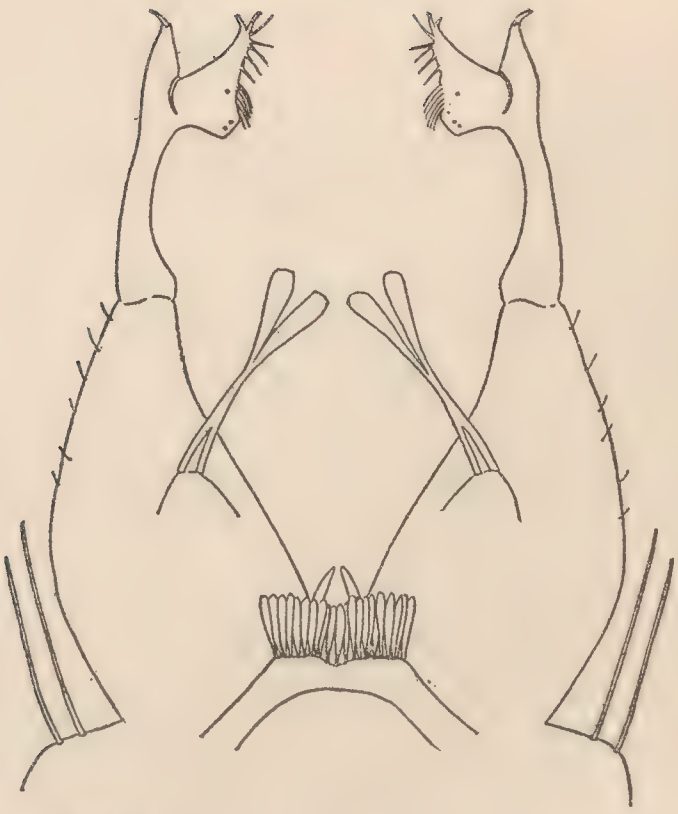

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415. *Wyeomyia caracula* D. and N. T., male hypopygium
416. *Wyeomyia gaudians* D. and N. T., male hypopygium
417. *Wyeomyia gausapata* D. and N. T., male hypopygium
418. *Dendromyia felicia* D. and N. T., male hypopygium

BIBLIOGRAPHY

[List of publications cited by abbreviation]

PERIODICALS

Abhandlungen und Berichte des Vereins für Naturkunde zu Cassel. Cassel, Germany.
Agricultural Gazette of Canada. Ottawa, Ontario, Canada.
American Journal of Agriculture and Science. Albany, New York.
The American Journal of Hygiene. Baltimore, Maryland.
The American Journal of Tropical Medicine. Baltimore, Maryland.
The American Journal of Tropical Diseases and Preventive Medicine. Official Organ of the American Society of Tropical Medicine. New Orleans, Louisiana.
Anales de la Academia de ciencias médicas, físicas y naturales de la Habana. Revista científica. Habana, Cuba.
Anales del Museo nacional de Buenos Aires, fundatos por el Dr. Germán Burmeister el año 1864. Buenos Aires, Argentina.
Annales historico-naturales, Magyar menzeti múzeum (National Museum of Hungary). Budapest, Hungary.
Annales de la Société entomologique de France. Fondée le 29 Février 1832. Paris, France.
Annals of the Entomological Society of America. Published Quarterly by the Society. Columbus, Ohio.
Annals of Tropical Medicine and Parasitology. Issued by the Liverpool School of Tropical Medicine. Liverpool, England.
Archiv für Schiffs- und Tropen-Hygiene; unter besonderer Berücksichtigung der Pathologie und Therapie. Cassel, Germany.
Archives de parasitologie. Paris, France.
Archivos do Museu Nacional. Rio de Janeiro, Brazil.
Atti della R. Accademia dei Lincei. Rendiconti. Roma, Italy.

Brazil-Medico; Revista semanal de medicina e cirurgia. Rio de Janeiro, Brazil.
Boletín del Instituto de clínica quirúgica. Universidad de Buenos Aires. Buenos Aires, Argentina.
Boletín del Instituto entomológico y de patalogia vegetal. Buenos Aires, Argentina.
Bulletin of Entomological Research. Issued by the Imperial Bureau of Entomology. London, England.
Bulletin du Muséum d'histoire naturelle. Paris, France.
Bulletin of the New Jersey Agricultural Experiment Stations. New Brunswick, New Jersey.
Bulletin des séances de la Société Entomologique de France. Paris, France. (Published with the Annales.)
Bulletin of the New York State Museum: Entomology. Published Monthly by the University of the State of New York. Albany, New York.
Bulletin de la Société impériale des naturalistes de Moscou. Moscow, Russia.
Bulletin of the United States Geological Survey. Washington, D. C.
Bulletin of the United States National Museum. Smithsonian Institution, United States National Museum. Washington, D. C.
Bulletino della Società entomologica Italiana. Firenze, Italy.

The Canadian Entomologist. London, Ontario, Canada.
Compte rendu hebdomadaire des séances et mémoires de la société de Biologie. Paris, France.

Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia. Philadelphia, Pennsylvania.
Entomologisk Tidskrift, utgiven av Entomologiska Föreningen i Stockholm. Uppsala, Sweden.
The Entomologist, An Illustrated Journal of General Entomology. London, England.
Stettiner Entomologische Zeitung. Stettin, Germany.

A Folha Medica. Rio de Janeiro, Brazil.

George Washington University Bulletin. Washington, D. C.

Imprensa Medica. São Paulo, Brazil.
Insecutor Inscitiæ Menstruus, A Monthly Journal of Entomology. Conducted by Harrison G. Dyar. Washington, D. C.
Insektenbörse. Tübigen, Germany.

Journal of the Academy of Natural Sciences of Philadelphia. Philadelphia, Pennsylvania.
Journal of the American Veterinary Medical Association. New York, New York.
Journal of the Bombay Natural History Society. Bombay, India.
Journal of Economic Biology. London, England.
Journal of Economic Entomology. Official Organ American Association of Economic Entomologists. Concord, New Hampshire.
Journal of the Elisha Mitchell Scientific Society. Chapel Hill, North Carolina.
Journal of the New York Entomological Society. Devoted to Entomology in General. New York, New York.
Journal de physique, de chimie et d'histoire naturelle élémentaires. Paris, France.
The Journal of Tropical Medicine. London, England.
Journal of the Washington Academy of Sciences. Washington, D. C.

Kansas University Science Bulletin. Lawrence, Kansas.

Memorias do Instituto Oswaldo Cruz. Rio de Janeiro—Manguinhos, Brazil.
Mémoires de la Société d'histoire naturelle de Paris. Paris, France.
Memorie: R. Accademia delle scienze di Torino. Turin, Italy.
The Military Surgeon. Carlisle, Pennsylvania; Chicago, Illinois; Washington, D. C.
Mitteilungen aus dem Zoologischen Museum in Berlin. Berlin, Germany.

Le Naturaliste. Paris, France.
Nederlandsch Tijdschrift voor Geneeskunde. Amsterdam, Holland.
The New Orleans Medical and Surgical Journal. New Orleans, Louisiana.

Paludism; being the Transactions of the Committee for the Study of Malaria in India. Simla, India.
La Prensa médica argentina. Buenos Aires, Argentina.
The Philippine Journal of Science. Section D: General Biology, Ethnology, and Anthropology. Manila, P. I.
Proceedings of the Biological Society of Washington. Washington, D. C.
Proceedings of the Entomological Society of Washington. Washington, D. C.
Proceedings of the Linnæan Society of London: Zoology. London, England.
Proceedings of the Linnæan Society of New South Wales. Sidney, Australia.
Proceedings of the United States National Museum. Smithsonian Institution, United States National Museum. Washington, D. C.
Il Progreso médico. Habana, Cuba.
Psyche: A Journal of Entomology (Established in 1874). Cambridge, Massachusetts.
Physis: Revista de la sociedad argentina de ciencias naturales. Buenos Aires, Argentina.

Records of the Indian Museum. Calcutta, India.
Report of the Health Department of the Panama Canal. Washington, D. C.

Reports of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum. Khartoum, Egypt.
The Review of Applied Entomology: Series B: Medical and Veterinary. Issued by the Imperial Bureau of Entomology. London, England.
Rivista di Malariologia; publicazione bimestrale. Roma, Italy.
Revista del Instituto Bacteriologica del Departmento Nacional de Higiene. Buenos Aires, Argentina.
Revista del Museo de La Plata. Buenos Aires, Argentina.

Science (new series): A weekly journal devoted to the advancement of science, publishing the official notices and proceedings of the American Association for the Advancement of Science. New York, New York.
Sciencia Médica; Revista Brasileira de Medicina e Sciencias Affinis. Rio de Janeiro, Brazil.
La semana médica. Buenos Aires, Argentina.
Smithsonian Miscellaneous Collections, Quarterly Issue. Washington, D. C.

Report of the Thompson, Yates and Johnston Laboratories. Liverpool University. Liverpool, England.
Tidschrift voor Entomologie, uitgegeven door de Nederlandsche Entomologische Vereeniging. 's Gravenhage, Holland.
Transactions of the American Entomological Society. Philadelphia, Pennsylvania.
The Transactions of the Entomological Society of London. London, England.
Transactions of the Linnæan Society of London: Zoology. London, England.
Transactions of the Royal Canadian Institute of Toronto. Toronto, Ontario, Canada.

Verhandlungen der kaiserlich-königliche zoologisch-botanischen Gesellschaft in Wien. Vienna, Austria.
Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande, Westfalens und des Reg. bez. Osnabrück. Bonn, Germany.

Zoological Journal. London, England.

SEPARATE WORKS

Bequaert, J., Contributions from the Harvard Institute for Tropical Biology and Medicine, No. iv. Medical Report of the Hamilton Rice Seventh Expedition to the Amazon, in Conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. Part II, Medical and Economic Entomology. Cambridge, Mass., 1926.

Bigot, J. M. F., Diptera in Historia física de la isla de Cuba. Paris, France, 1857.

Bigot, J. M. F., Exploration scientifique de la Tunisie. Enumération des Diptères et description des espèces nouvelles. Paris, France, 1888.

Blanchard, E. Insectos, in C. Gay, Historia física y politica de Chile. Paris, France, 1852.

Blanchard, R., Les Moustiques: Histoire naturelle et médicale. Paris, France, 1905.

Bonne, C., and J. Bonne-Wepster, Mosquitoes of Surinam, a Study on Neotropical Mosquitoes. Royal Colonial Institute of Amsterdam, No. xxi, Department of Tropical Hygiene, No. 13. Amsterdam, Holland, 1925.

Bourroul, C., Mosquitos do Brasil. Faculdade de Medicina da Bahia, These de Doutoramento. Bahia, Brazil, 1904.

Brullé, A., Insectes in Expédition scientifique de Morée, section des sciences physiques: Zoologie. Paris, France, 1832.

Chagas, C., Novas Especies de culicidos Brazileiros; Trabalho do Instituto de Manguinhos. Rio de Janeiro, Brazil, 1907.

Chanal, L., Role pathogène des moustiques en pathologie humaine et comparée. Répertoire des espèces pathogènes et des parasites qu'elles transmittent. Travail du Laboratoire de Parasitologie de la Faculté de Médecine. Paris, France, 1921.

CHRISTOPHERS, Lieut.-Col., S. R., Provisional List and Reference Catalogue of the Anophelini. The Indian Medical Research Memoires, Memoir No. 3. Calcutta, India, 1924.

COQUILLETT, D. W., A Classification of the Mosquitoes of North and Middle America. Technical Series No. 11, U. S. Department of Agriculture, Bureau of Entomology. Washington, D. C., 1906.

CRUZ, O. G., Uma nove especie do genero Psorophora. Trabalho do Instituto de Manguinhos. Rio de Janeiro, Brazil, 1907.

——— Um novo genero brazileiro da sub-familia "Anophelinæ." Trabalho do Instituto de Manguinhos. Rio de Janeiro, Brazil, 1907.

DEGEER, C., Mémoires pour servir à l'histoire des Insectes. Stockholm, Sweden, 1776.

DYAR, H. G., Report of the Canadian Arctic Expedition 1913-18. Volume III: Insects; Part C, Diptera. Southern Party—1913-16. Ottawa, Ontario, Canada, 1919.

——— and M. NÚÑEZ TOVAR, Notas sobre nuevos dipteros hæmatofagos de Venezuela (Culicidæ). Maracay, Venezuela, 1927.

EICHWALD, Reise auf dem Caspeschen Meere und in Caucasus unternommen in 1825-1826. Stuttgart und Tübigen, 1834-38.

FABRICIUS, J. C., Entomologica systematica. Halfniae, 1792-1794.

——— Systema Antliatorum. Brunsvigae, 1794.

FREEBORN, S. B., The Mosquitoes of California. University of California Publications, Technical Bulletins. College of Agriculture, Agricultural Experiment Station: Entomology. Berkeley, California, 1926.

GERMAR, E. F., Reise nach Dalmatien und in das Gebiet von Ragusa. Leipsig, Germany, 1817.

GILES, G. M., A Handbook of the Gnats or Mosquitoes. London, England, 1900, 1902.

GOELDI, E. A., Os Mosquitos no Pará. Memoires do Museu Goeldi (Museu Paraense) de historia natural e ethnographica, iv. Pará, Brazil, 1905.

GRIFFITTS, T. H. D., Public Health Reports (July 22, 1927): Treasury Department, United States Public Health Service. Washington, D. C., 1927.

HARRIS, T. W., Catalogue of the Insects of Massachusetts, in Hitchcock's Report of the Geology, Botany, and Zoology of Massachusetts, 1833, 1835.

HEARLE, E., National Research Council, Report No. 17: The Mosquitoes of the Lower Fraser Valley, British Columbia, and their Control. Ottawa, Ontario, Canada, 1926.

HOWARD, L. O., Mosquitoes; How they carry disease; how they are classified; how they may be destroyed. New York, 1901.

——— H. G. DYAR, and F. KNAB, The Mosquitoes of North and Central America and the West Indies. Washington, D. C., 1912-1917.

HUMBOLDT, A., Voyage de Humboldt et Bonpland. Part I.; Voyage aux régions équinoxiales du nouveau continent. Paris, France, 1805-34.

IZQUIERDO, Investigación sóbre el Paludísmo en Puebla. Thesis doctoral. Colegio del Estado de Puebla. Puebla, Mexico, 1916.

KIRBY, W., Insects, in Richardson's Fauna boreali-Americana. London, 1837.

KNAB, F., Report of First Expedition to South America, Harvard University Medical School, Department of Tropical Medicine. Appendix III. Cambridge, Massachusetts, 1915.

LAHILLE, F., Notes sur la classification des moustiques. Actas y Trabajos del Segundo Congreso Médico Latino-Americano, tomo II. Buenos Aires, Argentina, 1904.

LEICESTER, G. F., The Culicidæ of Malaya. Studies from Institute for Medical Research, Federated Malay States, Vol. III, Part 3. Singapore, 1908.

LINNÆUS, C., Flora Lapponica: Exhibens plantas per Lapponiam crescentes. Amstelaedami, 1737, 1792.

——— In F. HASSELQUIST, Reise nach Palästina. Rostock, 1762.

——— Systema Naturæ, Sive regna tria naturæ systematice proposita per classes, ordines, genera et species. Editio decima. Holmiae, 1758.

LUTZ, A., Um novo genero brazileiro anophelino. Rio de Janeiro, Brazil, 1907.

MACQUART, J., Diptères exotiques nouveaux ou peu connus. Paris, France, 1838-1855.

——— Diptères in P. Barker-Webb et S. Berthelot, Histoire naturelle des îles Canaries. Paris, France, 1835-1844.

——— Histoire Naturelle des Insectes: Diptères. Suites à Buffon, Libraire encyclopédique de Roret. Paris, France, 1834.

MEIGEN, J. W., Klassifikation und Beschreibung der europäischen zweiflügeligen Insekten (Diptera, Linn.). Braunschweig, 1804.

——— Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. Aachen und Hamm, 1818-1838.

MUELLER, O. F., Fauna Insectorum Fridrichsdalina, sive Methodica Descriptio Insectorum agri Fridrichsdalensis. Halfniae et Lipsiae, 1764.

PATERSON, G. C. y R. C. SHANNON, Mosquitos de Embarcación (Salta), con notas sobre la zona biológica del Chaco. Boletín del Instituto de Clínica Quirúgica. Buenos Aires, Argentina, 1927.

PERYASSÚ, A. G., Os Culicideos do Brazil. Trabalho do Instituto Manguinhos. Rio de Janeiro, Brazil, 1908.

PINTO, C., Anophelinas de Angra dos Reis. Trabalhos do Instituto Oswaldo Cruz. Publicação do "Brazil-Medico." Rio de Janeiro, Brazil, 1923.

RANGEL, R. et ROMERO-SIERRA, Thèse de doctorat du Dr. Romero. Caracas, Venezuela, 1907.

RONDANI, C., Esame di varie specie di Insetti ditteri brasiliani. Studi entomologici publicati per cura di F. Baudi e di E. Truqui. Torino, Italy, 1848.

SAY, T., Insects, in Keating's Narrative of an Expedition to the Source of St. Peter's River, under the command of S. H. Long. Philadelphia, Pennsylvania, 1824.

SILER, J. F., M. W. Hall, and A. P. HITCHINS, Dengue: Its History, Epidemiology, Mechanism of Transmission, Clinical Manifestations, Immunity, and Prevention. Manila, P. I., 1926.

SURCOUF, J. M. R., et R. GONZALES RINCONES, Essai sur les Diptères vulnérants du Venezuela: Matériaux pour servir à l'étude des Diptères piqueurs et suceurs de sang de l'Amerique intertropicale. Paris, France, 1911.

TAMAYO, Memoria de la Municipalidad de Lima 1906. Lima, Peru, 1907.

THEOBALD, F. V., Diptera, Family Culicidæ, in Genera Insectorum, publiés par P. Wytsman, Bruxelles, Belgium, 1905.

——— A Monograph of the Mosquitoes of the World. British Museum, London, England, 1901-1910.

——— The Mosquitoes or Culicidæ of Jamaica. A Publication of the Institute of Jamaica. Jamaica, B. W. I., 1905.

——— Novæ Culicidæ. Wye, England, 1911.

——— Reports of the Sleeping Sickness Commission, Royal Society of London. London, England, 1903.

——— Union of South Africa, Department of Agriculture, First Report of the Director of Veterinary Research. Pretoria, Transvaal, 1911.

THOMSON, C. G., Diptera in Kongl. svenska Fregatten Eugenies Resa omkring jorden. Stockholm, Sweden, 1851-1853.

WALKER, F., Catalogue of Dipterous Insects in the collection of the British Museum. London, England, 1848.

——— Insecta Saundersiana or characters of undescribed species in the collection of W. W. Saunders. Diptera. London, England, 1856.

——— In K. Lord, The Naturalist in Vancouver Island and British Columbia. London, England, 1865.

WALTL, J., Reise durch Tyrol Oberitalien und Piedmont nach dem südlichen Spanien; nebst einem Anhange zoologischen Inhalts. Passau, 1835.

WESENBERG-LUND, C., Contributions to the Biology of the Danish Culicidæ. Mémoires de l'Académie Royale des Sciences et des Lettres de Danemark. Copenhagen, Denmark, 1920-21.

WEYENBERGH, H., Los Habitantes (Vertebrados y Invertebrados) del rio Primero. Montevideo, Uruguay, 1882.

WIEDEMANN, C. R., Ausereuropäische zweiflügelige Insekten. Als Fortsetzung des Meigen'schen Werkes. Hamm, 1828-1830.

——— Diptera Exotica. Kiliae, 1821.

WILLISTON, S. W., Insecta; Diptera in Biologia Centrali-Americana. London, England, 1891-1903.

——— U. S. Department of Agriculture, Division of Ornithology and Mammology, North American Fauna No. 7. Washington, D. C., 1893.

ZETTERSTEDT, J. G., Diptera Scandanaviae disposita et descripta. Lundae, 1842-1855.

——— Insecta lapponica. Lipsiae, 1838-1840.

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